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STATE

OF

NEW HAMPSHIRE.

ANNUAL REPORTS,

1889.

Vol. I.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1889.



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MESSAGE

OF

HIS EXCELLENCY DAVID H. GOODELL

GOVERNOR OF NEW HAMPSHIRE,

TO THE

TWO BRANCHES OF THE LEGISLATURE,

JUNE SESSION, 1889.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1889.

MESSAGE.

Gentlemen of the Senate and House of Representatives :

Having a deep sense of the great responsibility that I assume in accepting the high official trust you have conferred upon me, I invoke the blessing of Almighty God and the support of all good citizens of this commonwealth to aid me in the proper discharge of the duties of my office.

FINANCES.

The finances of the State are in excellent condition. The total indebtedness, June 1, 1887, was \$2,831,300.79; the total indebtedness, June 1, 1889, was \$2,632,316.17. Decrease for the two years was \$198,984.62. The treasurer's report will give full details.

INDUSTRIAL SCHOOL.

This is one of the most important of our state institutions. The number of scholars, April 1, 1889, was: boys, 100; girls, 20. No sickness that required the attendance of a physician has occurred during the year, and death has not entered this large family for more than five years. New bedsteads and mattresses are needed for the one hundred boys, so that about the same appropriation will be required this year as was made by the last Legislature.

STATE PRISON.

The Legislature of 1877 voted to build a new prison, with cells sufficient to accommodate two hundred prisoners.

In 1878 it was found that we had a little more than two hundred prisoners in the old prison. Our population was expected to increase, so it was thought the number of prisoners would naturally increase; therefore the Legislature of that year decided to add sixty-four cells to the original plan. I am glad to say that this addition was entirely unnecessary. The number of convicts has gradually but constantly diminished to the present time. The daily average last year was $106\frac{5}{11}$, or $11\frac{1}{2}$ less than the year before. As intemperance is the cause of three quarters of all the crimes committed in New Hampshire, we may well congratulate ourselves on the wonderful improvement in the habits of our people during the past decade. The health of the prisoners is good, the discipline excellent, and the general management of a high order. When we had two hundred prisoners, the expenses for officers and many other things were no greater than now, while the income was nearly double. Then the prison more than paid its expenses; now it cannot do this. Last year the expenses exceeded the income by \$3,934.24. If the number of prisoners grows less, as it is likely to, the deficit will doubtless be still larger.

ASYLUM FOR THE INSANE.

This asylum, under the same general management as for years past, has acquire a national reputation for excellence in its work for suffering humanity. The appropriation made by the last Legislature has been wisely and economically expended, and no appropriation will be asked for this year. I learn that there are nearly five hundred insane people at our county asylums. I recommend that state supervision over county asylums and legal commitments and annual reports to the Governor and Council be required by law.

NORMAL SCHOOL.

An act of the Legislature of 1870 established the Normal School. In 1875 it was enacted that the school should furnish free tuition to normal pupils entering into contract to teach in the State a specified time.

In 1878 an act was passed appropriating five thousand dollars annually to defray expenses. The school was at a low ebb, and found itself confronted by prejudice, local antagonism, and a record of unavailing struggle. From that time, however, it has made steady progress. This year there have been eighty-three normal pupils and one hundred and ninety-two in the training schools. Plymouth affords training-school facilities entirely unique in the United States. There is no other place where the whole system of the schools of a town, including all grades from primary to high school, is entirely under control of the Normal School. This affords practical training on the schoolroom floor, with actual classes, under the eye of critical teachers. Plymouth is so well satisfied with the result, so far as her schools are concerned, that the town votes more than three times as much money to the school as the contract with the State requires.

The school has outgrown its accommodations, and progress demands modern equipment. The last Legislature appropriated two thousand dollars additional to the annual appropriation, raising it to seven thousand. This is sufficient for the "running expenses." It also appropriated twelve thousand dollars for the "repair and enlargement" of the buildings. This sum was asked for in accordance with a rough estimate of the probably necessary work. With a portion of the money appropriated, an architect was employed to prepare plans for a new building. For the construction of such a building as is required, the appropriation was inadequate. It was hoped, however, that a part of the proposed edifice could be built with the money, and left in such shape that as time demonstrated the necessity

the State would carry out the plan of building in its completeness. It was the opinion, however, of men skilled in the law and its interpretation, that the trustees were not empowered, under the terms of the act, to build anew. They must "repair and enlarge the said building," if they did anything. Under such circumstances, it was unanimously decided that it was wise not to draw any more of the money appropriated than was necessary to pay the architect, and to lay the matter before the Legislature.

We have a school of first-rate grade and great capabilities. It has a greater number of students than at any time since the strictly personal character of the school was developed. More than that, with this increasing number of pupils, it has not been able to supply the constant and growing demand for trained teachers. Teachers and scholars alike are working with enthusiasm. The time, in my judgment, has come for the State to realize the situation and make suitable and early provision for the proper housing and furnishing of a school that cannot fail to become great, effective, and famous.

AGRICULTURAL COLLEGE.

The establishment of the Agricultural Experiment Station has increased the number of specialists and greatly added to the value of the agricultural course. At the same time the mechanical engineering course, with its workshop instruction in the manufacture and use of tools and machinery, bears directly upon some of the greatest industries of New Hampshire. Technical instruction, important as it is under all circumstances, has for us a special value when we consider the sharp competition which our state manufacturers are likely to meet from specially favored sections of the country.

The State should be liberal in providing increased facilities for workshop instruction. This is as necessary for the agricultural as for the mechanical student, and neces-

sitates a large expenditure in order that our equipment may rank with that of other States.

As the only technical school in New Hampshire, it deserves the encouragement and support of our people. Let the increased number of young men who are expected to enter its classes this fall, be provided with ample facilities for thorough training.

AGRICULTURE.

I am exceedingly gratified to be able to announce with perfect confidence that the tide of emigration from the farms of our rural districts, which seemed to be setting so strongly against us a few years ago, has been checked. Our agricultural population is certainly growing in wealth, and I believe it is in numbers as well. The value of the live stock in this State has increased more than one million dollars during the past two years. That excellent farmers' organization, the grange, together with the State Board of Agriculture, has been largely instrumental in bringing about these excellent results. For many years we have been sending entirely too many of our best young men and women to other States to help build up cities and towns there. I have often urged upon my fellow citizens the importance of looking about them to see the good things we have at home, before risking their time and energies in distant and unknown places.

Some of these deserted farms to which I have referred are so sterile, or so badly located, that they may wisely be devoted to the growth of wood and timber; but many of them are capable of yielding, to him who will till them intelligently and industriously, more of the comforts of life, a larger measure of moral and mental development, and a greater margin of profit in money, than any that can be obtained at the same price in the newer States and Territories. If the facts in regard to them could be made known to those who are seeking new homes, they would

be resettled, and restored to something of their former importance among the resources of the State. Then we have in our northern counties a broad acreage of virgin soil that is rich, mellow, comparatively accessible to market, and only needs to be well cultivated to support a large and prosperous population.

The marvelous development of the West, which has been in no small degree at the expense of New England, is, to a great extent, due to the systematic, persistent, and untiring work of state and railroad agents, who have been charged with the duty of painting in glowing colors its advantages, of bringing its unoccupied territory to the attention of immigrants, and of making it easy for them to purchase farms in their respective neighborhoods. Nearly all land-grant railroads have supported such agents, and through them, or by their aid, not only the Eastern man who has been made discontented by the tales of the wonderful fertility of the prairies and the concealment of their many disadvantages, but the thrifty foreigner, who comes to our shores to labor hard, live frugally, and wait patiently in the hope of owning a home of his own, has been able to purchase a quarter-section before he began his journey towards it. By appointing a state land agent and authorizing him, under such rules as may be deemed necessary, to collect information as to the number, character, and price of the farming lands for sale in each town, to place such facts before desirable classes of immigrants and others who may be looking for farms, put would-be purchasers in communication with the owners of these lands, and assist generally in bringing about their transfer to capable and willing farmers, I am convinced there would result a staying of the depopulation of our rural districts and the reclaiming of hundreds of farms that are now tenantless.

The State should co-operate with the organizations to which I have referred, in order that this glorious result may be brought about as quickly as possible. If thought ad-

visible, this work could be done under the direction of the secretary of the Board of Agriculture, and without much expense to the State.

SAVINGS BANKS.

The savings banks of our State appear to be in a most excellent condition. The increase in the amount and number of deposits is almost marvelous. In 1850 we had \$5.16 per capita, deposited in twelve banks; we now have \$161.41 per capita, deposited in sixty-nine banks, or more than thirty times as much to-day per capita as we had in 1850. We have more than doubled our deposits since 1880, and now they amount to \$57,300,590.48; and the assets of the banks, including surplus and guaranty funds, amount to the enormous sum of \$62,727,699.17. Who shall say that New Hampshire is not living to-day upon the high tide of prosperity? And when we remember that this vast aggregation of capital is the accumulated deposits of more than one hundred and forty-five thousand of our people, belonging chiefly to the middle and wage-earning classes, we cannot fail to see how important it is that this property shall be made safe first and profitable afterwards. We should do both if possible. I find the laws of some other States limit to a larger degree than here both the kind and place for the investment of savings-bank funds. Results of a policy of long standing are more valuable than any theories of men. As our banks have relatively less of doubtful securities and pay larger taxes and make larger dividends than the banks in most other States, there can be no substantial reason why we should make any material change in our laws relating to them.

As banks have increased in number and capital, the duties of the bank commissioners have increased to such an extent that two men cannot do all the work. I recommend that the law be so changed that there shall be three

bank commissioners, one of which shall be a member of the largest minority political party, and that they shall be appointed for three years, the same as railroad commissioners are now appointed.

INSURANCE.

The insurance companies in this State have done a prosperous business the past year. I learn that all the state stock companies, with possible one exception, could close up their business to-day, and re-insure all their risks and return to the stockholders all the capital invested and a large dividend besides. The mutual companies are also in good condition. Unless there should be some great conflagration in some of our cities, insurance in our home companies ought to be safe. I find in the insurance commissioner's excellent report that there are risks now in force in this State —

Home companies	.	.	.	.	\$70,512,950.12
Retired companies	.	.	.	.	7,574,173.67
Factory mutuals	.	.	.	.	41,726,752.00
					<hr/>
Amounting to	.	.	.	.	\$119,813,875.79

It will be seen that more than one third of this vast sum is held by factory mutuals, who never issued a valued policy, are not licensed to do business in New Hampshire, and pay the State no taxes. The commissioner says that these companies are carrying large risks on manufacturing property which could not otherwise be prudently or economically insured.

The passage of what is called the "valued policy" law in 1885 has created a great amount of discussion of insurance questions, and our people are better acquainted with this subject than ever before. It would seem, therefore, that if our largest manufacturers, who may be considered among our best business men, are satisfied with an indem-

nity policy, other people should be intrusted with the right to buy a valued or indemnity policy as they choose.

NATIONAL GUARD.

The New Hampshire National Guard, or state militia, is in excellent condition. It has improved annually in every essential particular, and is behind no other State in any respect. Other States, however, are constantly improving their military service, and it is said that we cannot expect to keep abreast of the times without a somewhat larger annual expenditure of money. I trust you will give this matter the consideration its importance deserves.

When the salary of the adjutant-general was fixed, the duties and responsibilities of the office were very light compared with the present time. I recommend an increase in the salary of this officer, so that we may retain or secure the services of a competent man.

INDIGENT SOLDIERS.

The law passed in 1885 for the relief of indigent soldiers had an excellent purpose, but its execution has shown some defects. As such persons are to be supported, according to this law, by the towns or cities where they live, overseers of the poor very naturally have classed them with paupers. Many feel humiliated by the name, and therefore refuse to accept the support they deserve. As these men were sent to the war by the State, it would seem that the State should furnish the proper relief, and thus take away the stigma of pauper.

SOLDIER RECORDS.

Several acts were passed by the Legislatures of 1885 and 1887, relating to the publication of the record of New Hampshire soldiers and sailors in the war of the Rebellion. The committee appointed to supervise the revision of the rolls of the soldiers and sailors of New Hampshire has

attended to its duty and has made an excellent report, by which it appears that the work has been prosecuted with great vigor but is by no means complete. I recommend that this work not only be continued, but that an increased clerical force be employed, that it may be accomplished as early as possible.

BATTLE FLAGS.

The battle flags in this state house are relics of great value ; they should be preserved with great care. The cases they are in are not tight ; moths and dust are liable to injure them. I recommend that something be done to preserve them safely for future generations.

STATE BOARD OF HEALTH.

The State Board of Health continues to do a most excellent work, and the health interests of the State have materially advanced. The report of the secretary will be found exceedingly interesting.

RAILROADS.

The railroad controversy of the last few years has been a very serious affair, injurious to the railroads themselves and detrimental to the State. I earnestly recommend the passage of such laws as will bring it to an end and thereby promote the public good. "Let us have peace."

MOUNTAIN ROADS.

It is said the glory of a town is in its roads. The same may be said of the State. The importance of this subject to the financial prosperity of our State is hardly appreciated. The income to our people from visitors to our mountains is immense, and increasing annually. I trust you will continue the liberal spirit of past Legislatures in this direction. The suggestion made in the Governor's message in 1887, that the appropriation for this purpose

might be applied more judiciously if made in a gross sum and expended under the direction of the Governor and Council, is worthy of your consideration.

STATE LINE.

The commissioners appointed to ascertain and establish the true jurisdictional line between this State and Massachusetts will submit their report, which will require action on the part of this Legislature.

FISH AND GAME COMMISSION.

The work of this commission may seem to some, who have not investigated it, a fancy affair of but little account. I consider it, however, of very great consequence to the financial prosperity of the State, as well as conducive to the health and happiness of our people, and I hope it will continue to receive such state aid and encouragement as its importance deserves.

TEMPERANCE.

Interest in the temperance cause has been rapidly increasing during the past few years. In the year 1883 a law was enacted requiring that physiology and hygiene, including special reference to the effects of alcoholic stimulants and narcotics upon the human system, should be taught in common schools. This seemed to meet with universal favor at the time of its passage, and yet, as far as I can learn, it has been almost entirely disregarded. I think all will agree that nothing will insure temperate habits among the people in the near future so well as the early instruction of our children and youth. I therefore recommend that this law be so amended that heavy penalties be imposed upon such officers chosen for this purpose as neglect to enforce it.

With very rare exceptions, our people believe that the sale and use of intoxicating liquors as a beverage are a great

evil. Almost all agree that such laws should be enacted as will curtail this evil as much as possible. There is a marked difference of opinion as to the best way to accomplish this object. Some believe in absolute prohibition ; they think that liquor-selling is a crime with which there should be no compromise. Others, who are doubtless equally sincere in their desire to promote the cause of temperance, declare that we have tried prohibition for over thirty years, and that it has failed to accomplish its purpose, and that, in their judgment, a stringent license law would be enforced, and would not only reduce the number of drinking-places and the amount of drinking, but also bring a large revenue to the State. There is a small class who believe there should be no law relating to liquor-selling any more than there should be relating to the sale of dry goods or groceries, who are ready to accept a license law as the best thing they can get. I have tried to look at it from every point of view, and I am forced to the conclusion that it is the duty of the State to prohibit the sale of all poisons to be used for illegitimate purposes.

It is also said that the attempt to enforce the prohibitory law is a farce ; that there is more drunkenness than before the effort was made, and if a saloon is closed in one place several spring up elsewhere to take its place. This is mere assertion, and the facts do not warrant it. It is sometimes charged that certain officers who are efficient in the enforcement of all other laws, either neglect or refuse to enforce the prohibitory law. If this is so, I believe some law should be enacted authorizing and requiring the supreme court promptly to remove such offenders, and appoint others in their places who will regard their official oaths.

When the State decided that it was best to prohibit the sale, it did an anomalous thing to neglect to forbid the manufacture of intoxicating liquors to be used as a beverage. Gentlemen, would it not be more consistent to treat

the manufacture of intoxicants just the same as you do the sale ?

PURE BALLOT.

The adoption of the Australian system of voting in many States shows that the people are awakening to the importance of a free and untrammelled ballot. I hope this Legislature will adopt this or some other system that will insure to our people an absolutely pure ballot.

STATE HOUSE.

The state house was remodeled and put substantially in its present condition about twenty-five years ago. Then it accommodated all the state officers, the State Library, and the Legislature very well. Now the family of state officials has entirely outgrown the house, so that bank commissioners, railroad commissioners, the insurance commissioner, and attorney-general are obliged to seek for quarters in different parts of the city. The number of state officers will not be less than now, but undoubtedly will increase as the State grows in wealth and population. The State Library is increasing very rapidly. More than three thousand volumes of books and pamphlets have been added to it during the past year, so that it now contains more than fifty thousand volumes. The Governors, in their messages for many years, have urged the importance of erecting a new building for this library. Important as it has been, nothing has really been done about it by former Legislatures, except to appoint committees of investigation. In view of the fact that this library is of immense value to the State, that it is scattered over the state house in seven or eight different rooms, liable to be totally destroyed in case of fire, that the dignity of this rich State of New Hampshire demands that she shall furnish house-room for her own official family, I must not only urge the importance but the absolute necessity of taking immediate steps to construct such a building as we need.

REVISION OF STATUTES.

During the past fifty years there have been three revisions and one compilation of the public laws of the State, — the Revised Statutes, in 1842 ; the Compiled Statutes, in 1852 ; the General Statutes, in 1867 ; and the General Laws, in 1878.

Many changes have been made in the laws since the last revision. More than one hundred and fifty acts have been passed having titles indicating that they are amendments of provisions of the General Laws. Among the subjects in regard to which important changes have been made are the following : election, taxation, militia, preservation of health, registration and publication of vital statistics, insurance, savings banks, assignments for the benefit of creditors, the public schools, and railroads. Town school districts have been substituted for the smaller school districts into which the State was formerly divided, and many of the laws which were applicable to the old system have become obsolete or ill adapted to the present system. A thorough revision of the school laws should be made with a view of simplifying and making them conform to the present condition of things. The same is true of the laws pertaining to railroads and many other subjects of general interest.

It is of the utmost importance that the public laws of the State be concisely, clearly, and unambiguously expressed, that the provisions thereof shall be consistent with each other and with the public policy of the State, and that they be gathered together so as to be readily accessible to the people. Wise laws thus expressed and collated will save much of the waste of money and happiness growing out of litigation, and thereby promote the peace and good order of the people. I recommend this subject to the careful consideration of the Legislature.

CONCLUSION.

I have thus referred to some of the matters likely to engross your attention. I have confidence that you will promptly proceed to the passage of such laws as will be conducive to the weal of our commonwealth, and it will be my highest aim to give my best effort to co-operating with you in whatever will tend to advance the best interests of our State.

REPORT
OF THE
STATE LIBRARIAN

TO THE
NEW HAMPSHIRE LEGISLATURE,

FOR THE YEAR ENDING
MARCH 1, 1889.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1889.

OFFICERS.

CHARLES R. CORNING, CONCORD,	}	<i>Trustees.</i>
GEORGE C. GILMORE, MANCHESTER,		
ALBERT S. BATCHELLOR, LITTLETON,		
WM. H. KIMBALL, CONCORD, <i>Librarian.</i>		

REPORT.

OFFICE OF THE STATE LIBRARIAN,
CONCORD, March 1, 1889.

*To the Honorable Senate and House of Representatives,
State of New Hampshire:*

It is gratifying to lay before you in my present report the evidence of due enterprise in behalf of the library on the part of the trustees. Notwithstanding the various barriers and limitations inevitable to the cramped library accommodations, it was felt that these conditions must not stand in the way of important acquisitions not always available. Hence valuable historic, legal, and statistical matter has been secured, for such use as may be had under present means, with a view to more facile use in the future.

An entire suite of new furnishing has been procured, which adds greatly to the order and comfort of the apartment, and is evidently appreciated by patrons. Also, a fine new floor has been laid, which excludes dust and cold (before quite free to enter), and adds to security from fire, as before sparks were liable to fall through open cracks upon any rubbish between the floorings. This new floor was needful in any case, and the new furniture will play into the new library, which must be soon provided in order to preserve and make duly serviceable the vast stores accumulated and constantly inflowing to this department.

The librarian is charged, by the law, with making "sug-

gestions for the improvement of the library." In view of this charge, I have, for several years past, tried to show the insecurity, waste, and general improvidence of this neglect to furnish, through adequate legislation, the means to build up, protect, and rightly convert, in use, the great wealth held by the State in its stock resources. The library room proper was originally constructed with a capacity to shelve fifteen thousand volumes. Additional shelving, with much overcrowding, makes way for some four to five thousand more. And yet there are some four or five thousand volumes — not duplicates — that are crowded out for want of shelf-room inside. Besides, there are masses of stock and duplicates, suitable for sale and exchange purposes, that can only be properly ordered to these ends through the provisions of a new library structure. All of these invaluable stores are in daily peril because not located in fire-proof quarters, as no property of this kind should fail to be.

At the last session of the Legislature, the library committee, after thorough investigation and deliberation, unanimously recommended to the House the appropriation of seventeen thousand dollars for the purchase of a lot then in view, and forty thousand dollars for the erection of a suitable library building. But the pressing need still appeals for favorable legislative action ; mainly because heretofore the movement dragged on the heels of tedious sessions, with inevitable results accordingly.

Portions of the valuable stores, before massed in various quarters, have recently been brought into better condition for use and preservation by the construction of shelves in three of the upper committee rooms, where, by the employment of requisite help, they have been shelved, classified, and catalogued in good order. The trustees are also (at the date of this report) about to have such further provisions and orderings made as will bring the whole stock into better conditions, and enable the making of an invoice that will bring it under tolerable command for such uses as arise.

One set of Hitchcock's Geological Reports has been sold during the year, and the proceeds passed into the state treasury.

The cases and briefs, Vol. 63 Reports, have been ordered and bound, making six large volumes. The same, corresponding to Vol. 64 Reports, will be likewise arranged, bound, and placed on the shelves, making, probably, eight volumes or more.

The fiscal year of the library ends June 1, and the financial exhibit will be made by the treasurer's report of that date.

I have realized from personal stock sales, etc.	\$48.30
Paid for postage and various incidentals . . .	47.20
	<hr/>
Balance carried to new account . . .	\$1.10

ADDED BY PURCHASE.

American Decisions, vols. 95-100	6
American Reports, vol. 60	1
American and English Railroad Cases, vols. 30-34 .	5
American and English Corporation Cases, vols. 17-21	5
United States Supreme Court Reports, vols. 123-127	5
United States Digest, N. S., vol. 18	1
Jones & Spencer's (N. Y.) Superior Court Reports, vols. 54, 55	2
Illinois Appeal Court Reports, vols. 22-25 . . .	4
Abbott's New Cases, New York, vols. 20, 21 . . .	2
American and English Cyclopedia of Law, vols. 4-7	4
Mew's Annual Digest for 1878	1
Court of Claims Reports (U. S.), vol. 22	1
Railway and Canal Traffic Cases, vols. 4, 5 . . .	2
Blatchford's United States Reports (C. C.), vol. 24	1
Montgomery County (Penn.) Law Reporter, vol. 3 .	1
Bates on the Law of Partnership, vols. 1, 2 . . .	2
Elmes' Custom Law	1

Angell on Highways	I
Washburn on Easements	I
Bigelow on Estoppel	I
Sansum's and Berryman's Insurance Digests	2
Colorado Reports, vols. 6, 7	2
American State Reports, vols. 1-3	3
High on Receivers	I
Alabama Reports, vol. 70	I
Bush's Kentucky Reports, vol. 14	I
Missouri Appeal Reports, vols. 15, 16	2
Dallam's Texas Decisions	I
Chitty's Equity Digest, vols. 6, 7	2
New York Criminal Reports, vol. 5	I
Luzerne County Legal Register Reports (4 Penn. Co.)	I
History of Exeter, N. H., by Charles H. Bell	I
Georgia Reports, vols. 59, 60, 62	3
North Carolina Term Reports	I
Philadelphia Reports, vol. 17	I
American Annual Digest, vol. 1	I
Croswell's Patent Cases	I
Walker's Law of Patents	I
Pennsylvania County Reports, vols. 4-6	3
Poore's Railroad Directory and Manual for 1888	I
Story of the Wild West	I
Sawyer's United States Circuit Court Reports, vol. 12	I
Haskell's Reports (Fox's Decisions), vols. 1, 2	2
Digest of Land Decisions	I
Digest of "American Decisions," vol. 3	I
New Hampshire Provincial Papers, vol. 1 (4), vol. 2 (3), vol. 3 (3), vol. 6 (1)	I I
Washington and The American Republic, by Loss- ing, vols. 1-3	3
Drury's History of Rome, vol. 8, part second	I
The Works of Benjamin Franklin, vols. 6-10	5
Hamersley's Army and Navy Register, 1776-1887	I

New England Historical-Genealogical Register, a partial set :	
Complete, vols. 1-8, 10, 12, 13, 15, 16	13
Nos. 1, 2 of vol. 9; Nos. 2, 3, 4 of vol. 11; No. 4 of vol. 14; Nos. 2, 3, 4 of vol. 15; Nos. 1, 2 of vol. 1; No. 2 of vol. 11 (unbound numbers)	12
History of the Civil War in America, by Comte De Paris	3
Biography of Henry Ward Beecher	1
History of Coös County, N. H.	1
Clinton-Cornwallis controversy	2
New Haven Historical Society's Papers, vols. 1-4	4
H. H. Bancroft's Historical Works, vols. 23, 30, 34, 35	4
The Story of New York	1
Memorial of Horace Eaton, D. D.	1
Life of Gen. Walter Harriman, by Prof. Hadley	1
Encyclopedia Britannica, vols. 23, 24	2
Appleton's Annual Cyclopedia for 1887	1
Cyclopedia of American Biography, vols. 4, 5	2
The Annual Statistician	1
Minutes of the Maine Conference, 5 vols. (bound), and 6 annual numbers (one vol.)	6
The Earth and its Inhabitants : Asia, 4 vols. ; Africa, 3 vols. ; Physical Geography, 2 vols.	9
Narrative and Critical History of America, vol. 7	1
Mosby's War Reminiscences	1
Hemenway's Vermont Historical Gazetteer, vols. 1-4	4
Pamphlets on the Constitution, 1787-88	1
Poore's Directory of Railroad Officials	1
History of the Town of Weare, N. H.	1
History of the Town of Fitzwilliam, N. H.	1
History of the Town of Haverhill, N. H.	1
Oakes' White Mountain Scenery	1
Library Notes, vol. 3	1

Rev. James H. Eames : In Memoriam (pamphlet)	I
Dartmouth Ægis, No. 1 of vol. 10, and of vol. 15 (pamphlet)	2
Tribute to Rev. Samuel W. Clark (pamphlet)	I
Gen. Sullivan not a Pensioner of Luzerne (pamphlet)	I
Address by Rev. Asa D. Smith (pamphlet)	I
Memoirs of Hon. William Sullivan (pamphlet)	I
The Senate of Massachusetts, by R. R. Bishop (pamphlet)	I
New Vade Mecum, or a Pocket Companion for Law- yers, Deputy-Sheriffs, and Constables	I
A Book of the Times	I
History of Massachusetts in the Civil War, vol. 2	I
Eastman's White Mountain Guide	I
Burnside and the Ninth Army Corps	I
Saber and Spurs, by Dennison	I
The Eleventh Rhode Island Regiment	I
A Narrative of the Campaign of the First Rhode Island Regiment	I
Matthew Colbraith Perry, by Wm. E. Griffis	I
Edmund Randolph, by M. D. Conway	I
The Puritan Age in Massachusetts	I
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New Hampshire Gazette, March 19, 1773, July 15, 1780, March 29, 1814; Essex Journal, August 4, 1790; Portsmouth Oracle, January 21, 1803, June 21, 1810 (6 numbers in all)	6

Fac-similes — New England Courant, February 11, 1723, October 29, 1764; New England Weekly Journal, April 8, 1728; New Hampshire Gazette, October 7, 1756; Newport Mercury, December 19, 1758; Maryland Journal, October 19, 1779 (9 numbers in all)	9
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SUMMARY.

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Acquired by regular receipts	690
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Various issues	173

Respectfully submitted.

WILLIAM H. KIMBALL,
State Librarian.

TWENTIETH ANNUAL REPORT

OF THE

INSURANCE COMMISSIONER

OF THE

STATE OF NEW HAMPSHIRE,

JUNE 1, 1889.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1889.

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STATE OF NEW HAMPSHIRE.

INSURANCE COMMISSIONER'S OFFICE,

CONCORD, April 1, 1888.

To His Excellency the Governor:

In accordance with the requirements of the law, the commissioner herewith submits the annual report for the year ending December 31, 1888, of the insurance department, which for nine months prior to that date had been under his official supervision, it being the twentieth report of the department and the first under the administration of the present commissioner. The prolonged illness and subsequent decease of his predecessor, accompanied by the absolute destitution of clerical service in the former work of the department, forbidding any means of enlightenment, except through the annual statements of the insurance companies doing business in the State the preceding year, imposed a duty upon the newly appointed commissioner more difficult of accomplishment than the added labor of the daily requirements of the department upon the attention of its only servant. The old insurance rooms in the state-house had been assigned for other purposes, and the new commissioner, upon the 19th day of March, 1888, was courteously ushered into the presence of the insurance accumulations of a score of years, in chaotic confusion, in the basement.

The re-organization of the department in its new and commodious rooms in Chase building being speedily accomplished, the overcrowded state-house, where all the public offices should be located, furnishing no accommodations therefor, the commissioner introduced himself to the duties which presented themselves to his attention, and assumed, also, the unfinished work.

The law requiring the assessment of a tax of one per cent upon the premium receipts of all foreign insurance companies licensed to transact business in New Hampshire, payable on or before the 1st day of April, was speedily complied with, and \$4,342.69 as promptly returned by the companies notified.

The unpaid balance of fees for filing annual statements of all companies reporting to the department, due on or before the 1st day of April, were collected without unreasonable delay; the insurance companies from out of the State, whose licenses to do business expire on the 1st day of

April in each year, were re-licensed, their agents, two hundred and thirty-six in number, re-commissioned, and the fees therefor collected.

The nineteenth annual report of the insurance department, and the twentieth also, bear the signatures of the present commissioner. Both will be presented for the consideration of the members of the General Court at its coming session in June. The one is the record of the nineteenth and last year of the successful administration of the department's first commissioner, and the other the first under the supervision of the present incumbent of that office.

FIRE INSURANCE STATISTICS.

The entire number of fire insurance companies legally transacting business in New Hampshire, during the year 1888, was fifty, all organized under the laws of the State. Of these, twenty-eight are charitable mutuals, bearing the burdens of their associate membership by contribution when misfortune or bad management overtake them, ten are cash mutuals, charging full cash premiums, according to underwriters' rates, which also govern the charges for stock insurance, and twelve are stock companies.

The number in 1887 was forty-seven. The increase of three is accounted for by the organization of another town mutual, located in Franklin, and reported under title of the "Farmers' Mutual Fire Insurance Company." It was organized under the general law, commenced business April 6, 1888, and since that time has written 134 policies, insuring property to the amount of \$105,555.

Another of the same fraternity of benevolent insurers, the "Wilnot Mutual Fire Insurance Company," has reported, doubtless for the first time, although it claims to have commenced business in 1858. No mention has ever been made of it in the reports of the department, so far as the commissioner is aware. Its statement will be found on page 33.

THE GRANGE MUTUAL FIRE INSURANCE COMPANY,

Organized in March, 1888, its principal office located in Milford, completes the list of new assessment mutuals. Its membership is wholly confined to members of the State Grange of the Patrons of Husbandry.

It is a matter of regret that the organizers of this company should have adopted this system of conducting its business, when, by prudent and careful management, such as it is receiving and will receive at the hands of its present officers, and a cash premium of sufficient size to reasonably insure the payment of losses without the offensive and often dangerous assess-

ment method of providing for this necessity, its success must have been assured.

The return of surplus earnings would be far more encouraging than the contribution-box, and would prove of greater utility in stimulating confidence. The commissioner made a personal examination of this company on the 5th day of February, 1889, and found it legally organized and conducting its business with prudence and care. It refuses special hazards, charges a cash premium of one half of one per cent on amount insured for three years. It also requires a policy liability of three per cent on amount insured, assessable as it may be needed to liquidate fire losses. Its policies are all written at the home office upon applications giving a full description of the property. It receives these from a corps of seventy-nine agents, all of whom are members of the Grange. In a little over five months it wrote 301 policies, insuring property to the amount of \$376,800, receiving therefor cash premiums of \$1,695.40. Its expenses for the same time were \$566.88, with no losses. Its assets are properly invested, its books and records are systematically and correctly kept, and the company, in the opinion of the commissioner, is as worthy the full confidence of the Patrons of Husbandry as any eleemosynary institution which distributes benefits dependent upon contributions of its membership.

CITIZENS' FIRE INSURANCE COMPANY.

The annual statement of this new stock company reports its organization on the 28th day of December, 1889. The company was undoubtedly organized for the purpose of re-insuring the risks and assuming the liabilities of the Dover Mutual Fire Insurance Company, which was effected the same day by a contract between the two companies, by which, for the consideration constituting the assets of the "Citizens'," as given in their annual statement to be found on page 80, less the amount of their capital stock, the Citizens' Fire Insurance Company assumed all the liabilities of the Dover Mutual and re-insured their outstanding risks. It also contracted that the policy holders of the Dover Mutual should be guaranteed against assessment on the policy stipulations of their mutual policies.

The liabilities of the Citizens', as published in the report referred to above, are for the unpaid losses of the Dover Mutual assumed under the contract of re-insurance.

The retirement of the Dover Mutual reduces the number of mutual companies to ten in 1888, from eleven in 1887. Its revived life in the Citizens' Fire Insurance Company, increases the number of stock companies to twelve in 1888, from eleven in 1887, and the following is the result of the changes during the past year:

AGGREGATE OF FIRE INSURANCE COMPANIES.

	1887.	1888.
Assessment mutuals.....	25	28
Cash mutuals.....	11	10
Stock companies.....	11	12
Total....	47	50

CAPITAL STOCK.

The capital of the stock companies, December 31, 1888, was \$1,365,000, a gain of \$110,000 over the preceding year; \$10,000 of this is the capital of the Citizens' of Dover, which is fully paid up in cash. The balance of \$100,000 is an increase of the capital stock of the New Hampshire Fire Insurance Company, making their capital \$600,000 fully paid up in cash. Born in 1869, its growth has been remarkable, and although not having attained its majority, it manifests a wonderful ability to take care of itself, and to contest successfully with companies in the full vigor of mature years. Like its symbol, the "*Old Man of the Mountain*," hewn from the solid granite, it bids defiance to the wrathful elements threatening disaster and destruction.

GENERAL BUSINESS OF 1888.

Compared with the business of the preceding year, the results seem exceedingly encouraging.

The commissioner has endeavored, so far as his limited supply of clerical assistance would permit, to present in detail the business of the year in the statistical tables which will be found in the latter part of the report. A brief synopsis of them is here given.

COMPARATIVE STATEMENT OF SURPLUS.

The following statement aggregates the assets and liabilities of the stock and cash mutuals at the close of the year 1888, and shows the surplus which these companies hold for the protection of policy holders, above the legal re-insurance reserve of 50 per cent of gross premiums on outstanding risks:

December 31, 1888.	Assets.	Liabilities except capital or guaranty fund.	Surplus as to policy holders.
Stock companies.....	\$3,019,513.07	\$1,223,206.91	\$1,796,306.16
Cash mutuals.....	187,158.33	133,455.69	53,702.64
Total.....	\$3,206,671.40	\$1,356,662.60	\$1,850,008.80

The same companies in 1887 reported a surplus for the benefit of policy holders of \$1,548,805.76, showing a net gain in this item in 1888, over the preceding year, of \$301,203.04.

In this estimate the surplus includes the capital and guaranty fund in both years. The addition to the capital stock of \$110,000 during the past year is, therefore, a part of this increase. The net surplus, excluding capital and guaranty fund, in comparative detail is as follows:

December 31.	Net surplus, 1887.	Net surplus, 1888.	Increase.
Stock companies.....	\$292,859.24	\$431,306.16	\$138,446.92
Cash mutuals.....	—7,053.48	45,702.64	52,756.12
Total.....	\$285,805.76	\$477,008.80	\$191,203.04

THE RATIO OF SURPLUS TO ASSETS.

In the above abstract, the stock company totals include the surplus of the newly organized Citizens' Insurance Company, whose returns are but the final statement of the business of the Dover Mutual. Its surplus above capital should be placed to the credit of the mutual companies. Especially is this true when the discouraging condition of the eleven mutuals at the end of the year 1887 is considered.

The table shows a deficiency of \$7,053.48, in net surplus, above guaranty fund. The flattering success accomplished by the careful and judicious work of 1888 has not only overcome the impairment without assessment, but has given the ten companies included in the summary above an increase in net surplus of \$52,756.12 over the last year's deficiency.

The Dover Mutual, though resting from her excellent labors, is entitled to remembrance in this summary of mutual success. The net surplus of the Citizens', which is \$2,329.69, should be transferred from the surplus of the stock companies and placed to the credit of the mutuals of 1888, whose aggregate net earnings of the year would then be the correct amount, \$48,032.33, showing an actual increase of \$55,085.81. In 1887, only four of the eleven cash mutual insurance companies had a surplus. The other seven were impaired to an amount exceeding the surplus, the net impairment of the last table. Only two were impaired at the close of the year 1888.

THE EXETER MUTUAL

Was one of them. In 1887 it was impaired \$3,702.21, had written less risks than during the year preceding, and had less in force at the end of

the year. The report on page 51 shows thorough exhaustion and premature abandonment. At the suggestion of the commissioner, after an examination of its affairs on the 21st day of March, 1889, the directors being present, unanimously concluded to cancel its risks. The company is now in process of legal settlement.

THE CHESHIRE MUTUAL

Is the other. It is nearly sixty-four years of age. Its history is exceedingly interesting, and its survival of many kindred benefactors entitled it to the most courteous consideration. The earliest record of its history, accessible to the commissioner, bears date September 1, 1852, and is from the official report of three insurance commissioners who were charged with the duty of supervising the business of twenty-three mutual insurance companies of New Hampshire.

The Cheshire, and Rockingham Farmers' of Exeter, alone remain. The rest have prematurely retired. Whether overburdened by the exactions of a trinity of commissioners, or apprehensions of the passage of a valued policy law, or the too frequent assessments of the benevolent directors, is a mystery unsolved.

The Cheshire Mutual then had risks amounting to \$2,823,458, protected by premium notes representing \$87,800.97. For twenty-seven years only two small assessments had been made. The average cost of insurance was less than seventy cents per annum on a thousand dollars. The Rockingham Farmers' is still doing a large business, preserving the methods of fifty years ago. The average cost of its insurance for seven years from 1846 was "fifty cents and two mills" on one thousand dollars. In 1886 the officers of the Cheshire Mutual claimed that they should be relieved from a re-insurance reserve on the old assessment business, then first charged to them as a liability, which claim was denied them. They previously adopted the cash premium system, taking a premium note, limiting the liability of policy holders for losses incurred, under the provision of the law. They have urged this claim every year and credit their impairment to its denial.

The commissioner in 1888 communicated his willingness to examine any company who requested it. This company made no response to the suggestion, which, if complied with, would have given them the equities they claim, if they have any. They take a full cash premium, are doing a successful business as appears, and will, it is believed, soon overcome the embarrassments of their present impairment.

INCOME AND EXPENDITURES.

Tables No. 2 and 8 show the income and expenditures of the stock and cash mutual companies, including the Dover Mutual, which re-insured its risks and ceased doing business on the 28th day of December, 1888.

The Citizens' annual statement gives many of the items of the business of the Mutual, the results of whose previous labors it assumed, and those appear in the stock tables, credited to the new company.

The items named in tables referred to are not included in the statement of the Citizens', and are therefore placed in this table with the mutuals, where they properly belong.

December 31.	Income, 1887.	Income, 1888.	Increase.
Stock companies.....	\$1,534,722.95	\$1,723,442.81	\$188,719.86
Cash mutuals.....	174,646.86	210,441.60	35,794.74
	\$1,709,369.81	\$1,933,884.41	\$224,514.60

The amount of the increase in the income of the stock companies, as given in the foregoing table, is over 12 per cent of the entire income of 1887. The mutual increase is 21 per cent over income of 1887.

The expenditures of the stock companies for the year 1888 amounted to \$1,416,567.52, and of the mutuals, including the business of the Dover Mutual, to \$138,680.81, making a total expenditure of \$1,555,248.33.

The net income over all expenditures was: stock companies, \$306,875.29, mutuals, \$71,760.79, making a total of \$378,636.08.

December 31.	Expenditures, 1887.	Expenditures, 1888.	Increase or decrease.
Stock companies.....	\$1,320,241.05	\$1,416,567.52	\$96,326.47
Cash mutuals.....	152,765.32	138,680.81	—14,084.51
	\$1,473,006.37	\$1,555,248.33	\$82,241.96

The ratio of increase in expenditures of the stock companies over the expenditures of 1887 is only 7½ per cent, while the ratio of decrease in the expenditures of the mutuals over 1887, is over 9 per cent.

With an increase of income of 21 per cent, and a ratio of decrease of the expenditures of over 9 per cent, the mutuals may well be commended for

apparent improvement over the last year. The net income over expenditures of the stock and cash mutual companies for the year 1888, and the increase of the net income, is shown by the following table :

December 31.	Net income over expendi- tures, 1887.	Net income over expendi- tures, 1888.	Increase.
Stock companies.....	\$214,481.90	\$306,875.29	\$92,393.39
Cash mutuals.....	21,881.54	71,760.79	49,879.25
	\$236,363.44	\$378,636.08	\$142,272.64

The ratio of increase of the net income of stock companies over the net income of the same companies in 1887, was 43.08 per cent; of the cash mutuals, 227.95 per cent. The average ratio of expenditures to income of the stock companies, was 82.19; that of the mutuals, including Dover, 65.90.

PREMIUMS RECEIVED AND LOSSES PAID.

The same tables show the net premiums received and losses paid by the stock and cash mutual companies, as follows :

December 31.	Net premiums received, 1887.	Net premiums received, 1888.	Losses paid, 1887.	Losses paid, 1888.	Ratio losses to premi- ums, 1887.	Ratio losses to premi- ums, 1888.
Stock	\$1,399,875.13	\$1,587,892.48	\$813,734.47	\$870,703.88	51.13	54.83
Mutuals.....	166,313.87	203,457.04	112,154.48	88,222.17	71.74	43.36
	\$1,566,189.00	\$1,791,349.52	\$925,888.95	\$958,926.05	59.11	53.53

While the ratio of losses to premiums in the mutual companies in 1887 was considerably in excess of the ratio of the stock companies, it is as noticeably smaller in 1888.

It is also a marked decrease over their own ratio in 1887, giving evidence of creditable improvement, which should stimulate confidence in mutual insurance, and insure to this class of companies the liberal patronage which will enable them to make even a better showing in the immediate future.

EXPENSES.

The cost of the business of the stock companies, exclusive of dividends, losses, and all other items not strictly pertaining to business expenses, was \$500,337.84.

This was 29 per cent of total income, and 31.51 per cent of net premiums received. The mutuals, including the Dover, paid for expenses \$49,332.72, which is only 23.44 per cent of income, and 24.25 per cent of net premiums received. The total expenses of all the stock and cash mutual companies amounted to \$549,670.56, making an average of about 28 per cent of total income, and 30 per cent of net premiums received.

RISKS AND PREMIUMS.

Tables 3 and 9 exhibit the business of the stock and mutual fire insurance companies in 1888, with premiums charged and losses incurred. They also state the amount of outstanding risks December 31, 1888, with the premiums thereon, and show the ratios of losses incurred to risks written and to premiums charged, also the cost of insurance on risks in force.

From these tables it appears that the stock companies of the State, not including the Citizens', which does not report its risks, had outstanding policies in force December 31, 1888, insuring property to the amount of \$152,183,856.87, charging therefor the sum of \$1,978,241.88. This was an average premium of \$1.30 on \$100 of the risks in force at the end of the year. The mutuals had risks in force December 31, 1888, amounting to \$14,418,773.34, and \$221,970.38 was charged for premiums thereon. The cost for each \$100 of insurance was an average premium of \$1.54.

Table 9 does not include the total risks outstanding at the end of the year 1888, nor the amount written during the year by the retired Dover Mutual, although reported by the company. The reason was the omission of the premiums charged on both items from their annual statements, so that the average results of the entire business of the mutual companies can only be presented by such ratios as can be found from the complete statements of the companies named in the table. The Dover Mutual was very successful in its work of 1888, and doubtless, if reported, would improve the ratios of the mutual insurance companies. The aggregate amount of risks written by the mutuals during 1888, including the Dover Mutual business, is \$12,531,974.35, and the total amount in force December 31, \$15,361,144.15.

LOSSES INCURRED.

These tables also show the amount of incurred losses by stock companies to be 46.09 per cent of premiums charged on risks written, and of mutual companies, 38.76 per cent.

The total amount of losses incurred by both classes of companies in 1888 was \$981,629.84.

NET ASSETS,

Or gross assets, less liabilities exclusive of re-insurance reserve. Table 4 shows the net assets of the stock companies in detail, the total of which is \$2,808,677.92.

The ratio of net assets to amount at risk is 1.85. The ratio of premiums charged to risks written during the year is found by this table to be 1.29.

In Table 10 the mutuals are credited with net assets amounting to \$164,696.46, with ratio of the same to risks in force of 1.14 per cent. The ratio of premiums charged to risks written during the year is 1.71 per cent, as shown by this table.

BUSINESS IN NEW HAMPSHIRE.

Table No. 5 exhibits the business of the stock fire insurance companies in New Hampshire, during the year 1888, giving risks written, premiums received, losses incurred, and losses paid. These companies assumed risks amounting to \$50,797,909.48, receiving gross premiums therefor of \$578,964.71. The total losses incurred were \$194,583.91, and losses paid, \$199,306.86. The ratio of losses incurred, in New Hampshire, to premiums received was 33.61 per cent, and of losses paid to premiums received, 34.43 per cent.

Table No. 11 exhibits the New Hampshire business of the mutual fire insurance companies, and shows risks written amounting to \$10,012,287.53, with gross premiums received in the sum of \$165,649.08.

The losses incurred were \$65,261.72, and the losses paid, \$70,328.80. Ratio of losses incurred to premiums received was 39.39, and the ratio of losses paid to premiums received was 42.46.

A comparison of the business in New Hampshire in 1888 with that of 1887 transacted by the same companies may not be devoid of interest. The home work of the year is certainly very encouraging, and exhibits a commendable degree of prosperity. It shows not only an increase in volume, but also a hopeful accumulation of strength in the companies.

STOCK COMPANIES.	1887.	1888.	Increase.	Decrease.
Risks written...	\$44,683,208.52	\$50,797,909.48	\$6,114,700.96	.....
Premiums rec'd	543,408.55	578,964.71	35,556.16	.....
Losses incurred	309,980.15	194,583.91	.....	\$115,396.24
Losses paid....	290,300.40	199,306.86	.....	90,993.54

The ratio of losses paid to premiums received in 1887 was 53.22. In 1888 this ratio was only 34.43.

The following table exhibits the comparative business in New Hampshire, of the mutual fire insurance companies, for the years 1887 and 1888:

MUTUAL COMPANIES.	1887.	1888.	Increase.	Decrease.
Risks written.....	\$9,893,540.23	\$10,012,287.53	\$118,747.30	.....
Premiums received	156,167.16	165,649.08	9,481.92	.....
Losses incurred....	117,920.12	65,261.72	.....	\$52,658.44
Losses paid.....	108,783.75	70,327.80	.....	38,455.95

The ratio of losses paid to premiums received in 1887 was 69.65. In 1888 this ratio was 42.46.

It will be observed in both of the foregoing tabular statements that the amount of losses incurred in 1887 was considerably larger than the amount of losses paid, while the reverse is true of the year 1888.

This shows that the losses of 1887 were allowed to draw upon the premium earnings of 1888, and that the business of the last year was sufficiently profitable to cancel the liabilities of 1887, outstanding at the end of the year, and also to permit the companies to defray their losses and expenses and lay by a handsome profit for future dividends.

The commissioner has endeavored to make the ratios appended to the statistical tables of general interest, and also instructive to those who are seeking the protection of their property from the ravages of fire.

Tables 6 and 12 give the cost of insurance on New Hampshire property, with premiums based upon underwriters' rates, as compared with insurance written upon rates of other States. The ratios made from the figures returned by the companies, in their annual statements, place the price of insurance in New Hampshire for stock companies at \$1.14 per \$100 of risk, while the corresponding price for insurance under other rates, by the same companies, is \$1.37 per \$100 of risk.

The mutual companies have charged an average premium, under New Hampshire rates, on the risks they have assumed during the year, of \$1.65 per \$100 of risk, and on the property they have insured, located out of the State, the premiums on risks written show an expense to the insured of \$2.02 per \$100 of risk.

Tables 13, 14, and 15 detail the business of the Grange Mutual, before referred to, and of the county mutuals, which, with Tables 16, 17, and 18, pertaining to the experiences of the adventurous town mutuals, detail in full the prosperities and adversities for another year of the

ASSESSMENT MUTUAL FIRE INSURANCE COMPANIES.

Twenty-five of the fifty fire insurance companies of the State have been presented to the public in this report thus far. It would be ungracious to leave the other half, numerically considered, without comment, praise, censure, or advice.

TOWN MUTUALS.

Careful attention to the tables referred to above will reveal the fact that intelligence sufficient to make an absolute success of this kind of a charity is not a universal endowment. One company thought it wisdom to insure a hazardous shoe-factory for a series of years, the premium being comparatively nothing but faith, and the probable but over-speedy result was a successful test of the charity of its membership. The cost of insurance to that company for that year was \$1.61 for each \$100 of amount at risk. Other companies, a very few, have fortunately escaped losses which their indifference to safety has permitted them to assume.

These companies have commendably increased their interest in domestic insurance, and many have been ambitious to limit their risks to those of the most desirable class and ownership, to make each contract so limited in amount as to remove the too frequent inducement of fire losses, and secure the careful oversight of the party holding but partial protection in his policy of insurance.

More efficient laws are required to preserve their usefulness, as they have a general indisposition to being swerved from their purposes, and imagine their by-laws are superior to the requirements of the department.

The average cost of insurance in these companies the past year has been 36 cents on \$100 of risk. Four companies, carrying an aggregate risk of \$549,155, furnished insurance the last year for 1 cent on \$100 of risk. One of these companies, for over a quarter of a century, has never made an assessment, and has cash assets of \$1,017.56. This has been accomplished on a cash premium of only 50 cents on \$100, from which all the losses and expenses of this excellently managed company were paid.

The following statement has found place in preceding reports since the organization of the present department. Out of respect for the custom of so long standing the commissioner continues the record.

Statement of Amount at Risk, Receipts, and Expenditures of the New Hampshire Town Mutuals.

	Amount at risk.	Premiums received.	Assessments made.	Losses paid.	Expenses.	Cost per \$100 of risk.	No. of co's.
1870	\$1,900,770.00	\$490.02	\$847.00	\$835.17	\$484.40	.07	14
1871	2,126,612.00	674.23	5,014.46	4,920.29	874.82	.27	15
1872	2,136,460.00	560.46	2,216.65	2,166.00	845.28	.14	15
1873	2,241,627.00	901.42	4,381.66	3,146.25	855.51	.18	16
1874	2,255,247.00	615.22	2,015.09	683.50	944.61	.07	16
1875	2,187,436.00	624.76	2,302.44	2,233.00	658.41	.13	15
1876	1,952,096.00	615.01	799.69	1,202.20	622.68	.09	16
1877	2,300,104.00	723.96	3,251.97	5,316.59	720.57	.26	16
1878	2,322,837.00	545.18	4,620.23	7,113.16	1,295.10	.36	16
1879	2,207,693.00	602.77	3,226.01	3,237.32	919.46	.19	16
1880	2,088,891.00	558.44	5,987.96	3,686.89	964.96	.22	16
1881	2,306,261.00	1,323.83	2,114.31	2,429.28	760.56	.14	18
1882	2,305,472.00	741.10	2,863.90	1,199.70	1,034.78	.10	18
1883	2,207,149.00	798.77	1,134.23	1,041.52	910.89	.09	17
1884	2,226,008.00	620.37	1,594.13	2,120.72	762.75	.13	17
1885	2,261,312.00	660.50	2,882.38	2,722.50	581.64	.15	17
1886	2,609,924.00	1,240.74	2,372.72	2,071.98	1,493.50	.14	21
1887	2,992,227.00	2,156.66	2,928.37	1,845.41	2,143.00	.17	23
1888	3,239,809.00	1,980.13	11,062.62	9,423.36	2,309.12	.36	25
	\$43,867,935.00	\$16,433.57	\$61,615.82	\$57,394.84	\$19,182.04	.17	

HOME COMPANIES.

The following is a summary of the total risks written during the year 1888, and amount of insurance in force at the end of the year, written by the fifty fire insurance companies of New Hampshire.

Aggregate of Risks Written and Risks in Force.

December 31, 1888.	Risks written.	Risks in force.
Stock companies.....	\$150,715,061.21	\$152,183,856.87
Cash mutuals.....	12,531,974.35	15,361,144.15
Assessment mutuals.....	2,047,994.00	7,886,892.00
	\$165,295,029.56	\$175,431,893.02

The following statements show the entire amount of risks written on property located within the State, by all the New Hampshire Fire Insurance Companies, with the risks in force, December 31, 1888. The last item is estimated by a few of the stock companies.

NEW HAMPSHIRE.	Risks written.	Risks in force.
Stock companies.....	\$50,797,909.48	\$52,099,937.96
Cash mutuals.....	10,102,287.53	10,526,120.16
Assessment mutuals.....	2,047,994.00	7,886,892.00
	\$62,948,191.01	\$70,512,950.12

FOREIGN FIRE INSURANCE COMPANIES.

No foreign fire insurance companies are licensed to do business in this State. During the past year, several companies with sufficient capital and assets to allow them to conform to all the requirements of New Hampshire laws, have made applications to the commissioner for admission. Blanks have invariably been furnished them, but none have been returned to this office. In one case inquiry was made of the applicant most persistent for an early supply of blanks, why his papers had not been returned, and information in answer was, in substance, that the company could receive no encouragement from the old agents to enlist in their service. A recent application for admission is now in the hands of the commissioner, and blanks will be furnished, but why this result should always follow the attempt to establish a company in New Hampshire not organized under her laws, is to the commissioner a problem, which he gives to the insurers of the State to solve. The insurance which has been nourished by the foreign insurance companies, who retired from our service in 1885, is nearly expired. The lapse of over three years after the exit, would, ordinarily,

have a damaging effect upon a line of insurance probably not much less than \$50,000,000 in amount when they retired from business in New Hampshire.

In 1886 they courteously responded to the inquiries of the department, and have continued their courtesies with the termination of each succeeding year, in reply to similar interrogatories.

Their generous responses in 1888 afford information tabulated as follows:

Amount at Risk and Losses Paid by Retired Fire Insurance Companies since 1885.

YEARS.	No. of companies reporting.	Amount at risk December 31.	Amount of losses paid each year.
1885.....	None.	.....	.....
1886.....	54	\$25,608,032.38	\$146,345.62
1887.....	49	19,367,183.56	77,563.42
1888.....	48	7,574,173.67	30,275.93

Only four companies reported a total expiration of all their risks, some had few, a small number had ceased doing business. The entire number of withdrawing companies was fifty-eight.

The commissioner is under obligations to the forty-eight companies who favored him with the information desired, and for the liberal treatment given the circulars of inquiry, doubtless at no little inconvenience.

FACTORY MUTUALS.

Fortunately the manufacturing interests of New Hampshire are especially provided for by the Associated Factory Mutual Insurance Companies of New England and Pennsylvania. These companies are carrying large risks on manufacturing property which could not otherwise be prudently or economically insured. They are not licensed to do business in New Hampshire, and claim no obligation to the State for taxes or fees. Insurers solicit insurance of them, and not they of insurers. The average cost of insurance to their patrons in 1888 was less than 22 cents on each \$100 of risk. They have willingly returned to the department the amount at risk and losses paid in New Hampshire during the year 1888, at the solicitation of the commissioner, for which he acknowledges obligations.

Twenty-one companies had risks in force in New Hampshire, December 31, 1888, amounting to \$41,726,752. In 1887, the same companies were carrying risks amounting to \$38,760,012. The losses in 1888 were \$23,977.52, and in 1887, \$197,679.27.

AGGREGATE OF NEW HAMPSHIRE INSURANCE.

The following statement presents the entire amount of risks in force on property in New Hampshire, at the end of the year 1888, and of the losses paid during the year so far as the reports to the department show :

December 31, 1888.	Risks in force.	Losses paid.
Home companies	\$70,512,950.12	\$282,091.85
Retired companies.....	7,574,173.67	30,275.93
Factory mutuals	41,726,752.00	23,977.52
	\$119,813,875.79	\$336,345.30

The average amount at risk by the foreign companies doing business in New Hampshire for five years last reported by them before their exit, as taken from the reports of the department for those years, was \$58,507,-275. This included the amount in force of a few miscellaneous companies, not included in the totals given in the preceding table, but doubtless more than offset by the risks of the assessment mutual companies.

It is fair to assert that the amount of risks now being carried by the New Hampshire insurance companies is in excess of the amount outstanding upon the books of the foreign companies when they left the State in 1885.

The average amount per year of risks written in New Hampshire by the foreign companies for the last five full years of their business here was \$39,782,878. The amount written by all the New Hampshire companies, on risks in the State in 1888, was \$62,948,191.

AGENTS.

The lists of agents returned by the twenty-two stock and cash mutual companies contain nine hundred and forty-six names. They are the names of a much smaller number of persons, as the individual agent is the representative of several companies.

The law requires that agents of foreign insurance companies shall be licensed by the commissioner annually.

From the record thus kept, he is able to know who are authorized to represent these companies, and he has the power to revoke their licenses for cause. The law also gives the right of appointment of its own agents to companies organized under the laws of the State, and confers no authority for their appointment otherwise, but "every such appointment, before it shall take effect, shall be recorded by the town clerk of the town in which he (the agent) resides and in which he shall act."

It further requires that the towns in which each agent may take applications shall be stated in his appointment, and not more than two agents in any county shall be authorized to take applications in any town, except that in which they reside. They are also required to give bonds for the faithful performance of their duty. It is needless to add that the law is wholly inoperative and absolutely ignored. So far as the commissioner is aware, no recognized means are provided by law or custom, whereby insurers may know whether a solicitor for insurance is an authorized agent or not. With the vast and growing property interests of the State, almost wholly dependent upon home insurance for indemnity from the ravages of the unconquerable fire-fiend, incessantly vigilant and unwittingly encouraged, is it not wisdom to guard the avenue from the insurer to the insured, the only available means of the company's intercourse with its patrons, by laws which shall give the department some knowledge of the existence and requirements of agents, and some power to prevent their extreme indifference as to the amount of insurance they place on the risks secured? Instances have repeatedly been brought to the attention of the commissioner during the last year, where property has been insured without the slightest inspection or knowledge of the risk, other than the statements of the insured, with the speedy result, a suspicious fire and public condemnation for over-insurance. Investigations under the law of 1887 have shown over-insurance in every case, and many of the returns from town officials of fires, report the total value of the property destroyed, as materially less than the insurance thereon. In one case, the selectmen's appraisal of buildings and the farm upon which they stood, was considerably less than the insurance upon the buildings. A mysterious fire totally consumed the buildings, and the land was appraised the next year for the same amount as the whole was, before the fire. In another, insurance was obtained for \$200 more than the entire value of the buildings and one hundred acres of land, which was reported as being worth quite as much after the total destruction of "the old buildings" as before. This fire was a total loss, and was settled for less than the face of the policy. Instances of over-insurance have been revealed by the investigations of the department, where agents have appointed sub-agents or under-solicitors, resident in towns inaccessible to the agent, and over-insurance obtained from such un-

warrantable authority. Many agents of long experience easily control a large number of risks, and write what old patrons solicit without investigation or inspection. They represent, in known instances, a large number of the companies in the State, some of whom realize the careless manner in which they write on over-hazardous property, and for a greater amount than the pledge of the valued policy, yet they cannot obtain risks through other sources, and feel compelled to accept what they consider it safe to carry. Too large a share of the fire loss in New Hampshire is directly attributable to a desire on the part of the agent to secure the greatest commission and on the largest premium possible.

These comments are applicable to but a few of the many representatives of the fire insurance companies, and are prompted by the apparent possibilities of small and rarely occurring losses, exhibited in the prudent work of those who are interested for the prosperity of the companies they represent.

EXAMINATION OF COMPANIES.

In most States it is thought to be necessary that home insurance companies should be occasionally inspected and a thorough examination made of their methods and business affairs, especially their financial condition, ability to fulfil their obligations, and to ascertain whether they are complying with the laws. Insurance laws should require such examinations to be made by the commissioner at stated intervals, and should also confer upon him the authority to make such an examination whenever he deems it prudent to do so.

The department should have the ability to vouch for the legal organization of all companies claiming the right to do business under the state laws, and no insurance company should be permitted to issue a policy without a certificate from the commissioner, setting forth that, upon examination, it is found that the company has complied with the laws of the State. Such a statutory provision is more urgently demanded in New Hampshire than in any other State, being forsaken by foreign companies. No State is so completely at the mercy of its domestic insurance corporations as New Hampshire. "Any persons may voluntarily associate together and be a corporation, with all the rights and powers and subject to all the duties and liabilities of similar corporations" for the purpose of organizing "a mutual fire insurance company."—General Laws, chap. 151. The only requirement demanded by the law, giving it the right to perfect the corporation, elect its officers, and commence business, is that the association shall give public notice of its formation, name, and object, by publishing such notice and posting the same in one or more public places in the town where it is located.

There must be, at least, two signers to the written articles, specifying the objects and conditions on which it is formed, and thus armed with legality and presumed *fidelity*, it must only await the public proclamation of the press and the town-house door, to permit it to organize and assume the responsibility of other corporate insurers. Recent inquiries from out of the State create a suspicion that such a conception has recently taken place in New Hampshire, although entirely without notice to the insurance department. The commissioner is permitted, by statute, to examine into the condition and affairs of any foreign insurance company at his pleasure, and may also examine the business of any of their agents, compelling the production of all books and papers, and answering, under oath, all questions relating to their business, but it carefully enacts, what now renders it useless, that it shall apply only to companies *not* organized under the laws of the State. If such supervision of companies with capital or assets of over two hundred thousand dollars, and under the most scrutinizing inspection at home and abroad, is essential, why should not the same inspections and examinations and legal requirements not only be permitted, but absolutely required under statutory provisions, for the protection of a State which is dependent alone upon the companies of its own creation, for its indemnity from fire?

The three companies who have sufficient capital to permit them to obtain license in other States, have always desired and received an examination at the hands of the commissioner. An early arrangement, in continuance of this method of assuring the public officially of their sound condition and prudent management, was made with the commissioner, which suggested the propriety of an extension of this privilege, if it should be so considered, to the other companies under control of the State.

Near the close of 1888 the commissioner addressed to each of the stock and cash mutual insurance companies in the State, a communication stating that he had been invited to examine the financial standing and business methods of several companies, and had made appointments for that purpose. It also contained a suggestion, that it would be a pleasure to him to visit, personally, any other companies who might desire similar attention, upon their invitation; not from any desire of his own to investigate their affairs, but from a willingness to comply with any request of this nature, if in their judgment the conference and report would be of any service to them. The following, in response to invitations as suggested, were examined, their status recorded in the department, and a certificate of the result of the examinations given to the companies.

The New Hampshire Fire Insurance Company was personally examined on the 31st day of December, 1888, the auditors of the company being also present. The Granite State was shown to the commissioner, on the

second day of January, 1889, and the examination of the People's Fire Insurance Company was made on the eighth day of the same month, the auditors of the company assisting.

The statements published herein as to the financial standing of each of these companies on the thirty-first day of December, 1888, were fully verified, and their business methods found to be such as care and prudence would demand.

Other examinations were made as follows :

Portsmouth Fire Association....	Portsmouth.....	January 2, 1889
Capitol Fire Insurance Co.....	Nashua	January 5, 1889
Mascoma Fire Insurance Co.....	Lebanon.....	January 23, 1889
Capital Fire Insurance Co.....	Concord.....	January 25, 1889
Fire Underwriters' Association..	Concord.....	January 26, 1889
Manufacturers & Merchants'....	Concord.....	January 29, 1889
Phenix Mutual.....	Concord.....	January 29, 1889
Manchester City.....	Manchester.....	January 30, 1889
Concord Mutual.....	Concord.....	February 1, 1889
Grange Mutual.....	Milford	February 5, 1889

These companies were found in an extremely gratifying condition, evincing a year of prosperity decidedly complimentary to their official management.

The gratitude of the commissioner is due the officers of these companies for their free and full disclosure of all their records and methods, and for their hearty concurrence in the suggestions made by him to secure more harmony in annual statements, and a more accurate report of the the companies' condition on the last day of the year.

This exposition of the various systems of conducting their business, so cordially granted, has been of great benefit to the commissioner in the prosecution of his official duties, and the frequent assurance that the companies have profited by their conference, caused a regret that he was not introduced to the methods and management of other companies.

In all cases, the examinations resulted in the full verification of the annual statements of the companies as published in this report, although a few changes were necessitated to harmonize the reported business of the year with its termination on the 31st day of December.

ASSESSMENT LIFE INSURANCE ASSOCIATIONS.

Examinations of the assessment life insurance companies were made, and their business methods fully investigated: The Granite State Mutual Aid Association of Keene, on the 28th day of December, 1888; the Provi-

dent Mutual Relief Association, of Concord, on the 7th day of January, 1889; and the Pemigewasset Mutual Relief Association, of Plymouth, on the 19th day of February, 1889. The work of the associations is plainly and intelligently engrossed, and the books and records, though differing materially from each other, are accurate and seemingly reliable in their enrolment of the companies' affairs, according with the advertised plans and methods of each association.

The annual statements of the associations, as herein given, were verified and their assets found to be properly divided and safely invested. The emergency fund of the Granite State Mutual Relief Association is a commendable improvement and a source of strength.

These associations seem to be in prosperous condition, and would undoubtedly find greater success in a broader field. The entire absence of any statutory provisions for the admission of assessment life insurance companies from other States, has operated to prevent our associations from going out of New Hampshire. Frequent applications are being made for the admission of this class of companies to this State to prosecute their business, and without doubt legislation will be asked for, at the coming session of the General Court, in the nature of a retaliatory law, such as is in force in most other States.

TAXES AND FEES.

Table No. 31 shows the amount of premiums received in 1888, by the insurance companies of other States and countries, doing business in New Hampshire, and the tax of one per cent collected thereon. The total amount received from this source was \$5,076.93. The tax paid by the same companies on the business of 1887 was \$4,342.69. Of the amount paid on premiums received in 1888, \$284.75 was by the fidelity and casualty companies, and \$4,792.18 by the life insurance companies. This shows an increase in their premium receipts over the business of 1887, of \$71,200, and the State received a tax increased by \$712, fifteen per cent upon the tax for 1887. The department received for agents' and companies' licenses \$586, and for filing annual statements \$415, a total of \$6,077.93. The tax of one per cent on capital of stock companies amounted to \$12,550, making the aggregate of taxes and fees paid to the State by insurance companies \$18,627.93.

FIRE STATISTICS.

The possibility of collecting full and accurate statistics under the requirements of the law of 1887, referred to in the previous report, has been more thoroughly tested during the past year and with gratifying results. The present commissioner had no means of information as to what had

been attempted prior to his appointment, except from a package of fire returns from a respectable number of towns, found among the property of the department, on blanks with instructions for filling and returning. Although the experiment was beset with difficulties, owing to the unfinished condition of the work of collecting the statistics required by the law, yet its apparent importance, and the possibility of success, gave encouragement to attempt the completion of the work, with such valuable assistance as he received from the monthly compilations of fire losses, procured for other purposes by Mr. F. C. Livingston. The results, though far from being as nearly correct as under more favorable circumstances they might have been, have met with approval, and encourage the belief that they may be improved advantageously, under the wisdom of experience and the necessary legislation.

The importance of correct statistics as to the causes of the large number of fires which are yearly draining the resources of the State cannot be over-estimated. The astonishing facts developed by carefully prepared statistics, show the necessity of pursuing the investigations in our own State, so auspiciously commenced, by such legislation as our own experience and that of other States finds necessary to compel the collection of the facts concerning the value of property destroyed by fire, the insurance thereon, the insurance paid, and especially the detailed circumstances connected with the origin of the fire.

The tabulated statistics of the fires in New Hampshire for the year 1888, given in table No. 32, are compiled from the voluntary returns of the engineers of cities and the selectmen of towns.

By urgent solicitation and persistent appeal, every city and town in the State has made its return through the parties addressed.

The officials of cities and towns have given courteous and efficient aid, with few exceptions, and their efforts are gratefully appreciated by the department.

The table shows the total number of fires in New Hampshire during the year 1888 to be 319; the total loss for the year to be \$523,658.71; and total amount of insurance paid for losses \$290,153.92.

A summary of causes is also given, from which it appears that 73 fires resulted from chimneys and defective flues.

The next largest number, omitting the unknown, was the reported incendiary fires, of which there were 34.

The loss for the year 1887 was returned as \$1,657,255, more than three times the loss for 1888; and the insurance paid in 1887 was \$937,183, also more than three times as much as was paid in 1888.

SUSPICIOUS FIRES.

The law of 1887, before referred to, directs the insurance commissioner to investigate suspicious fires as he shall deem expedient. Several fires of reported incendiary origin were brought to his attention in the fall of 1888. The circumstances surrounding their origin were inquired into sufficiently to convince him that the cause of two of these fires should be ascertained, if possible, by a thorough investigation.

The circumstances were brought to the attention of His Excellency the Governor and the honorable Council, who authorized the commissioner, at his discretion, to employ detectives to ascertain the cause of fires in cases of suspected incendiarism, and to report the evidence to the attorney-general, "when it appears that crime has been committed." Two fires were thoroughly investigated under official supervision, the testimony being of a character requiring that it should be referred to the attorney-general for further action under his direction. These reports are still in his hands. Since the beginning of the present year another investigation has been made, and evidence of crime referred to the attorney-general, as in other cases.

LIFE INSURANCE.

The commissioner regrets that he is unable to comment upon the encouraging and successful work of the life insurance companies doing business in New Hampshire. The amount of extra labor applied to the reports of the annual statements of the life companies, unaided by clerical assistance, and the necessity of immediate publication of this report, make it impossible for him to do more than commend the enthusiasm of a majority of the companies, the earnestness and zeal of their representatives in New Hampshire, and to be grateful with them all, for the eminent success of the companies who have diligently cultivated this field of labor. He acknowledges his gratitude for the attentions that have been generously bestowed upon him since his introduction, officially, to the officers of the life companies, and for their promptness in responding to his requirements of them.

The John Hancock Life Insurance Company, for many years, has made no effort to secure new business, and did not renew its license for 1889, leaving the total number of life insurance companies re-licensed to do business in 1889, twenty-two.

INSURANCE LAWS.

The statutes of New Hampshire, relating to insurance, are again to be found at the end of this report. It is sincerely hoped and confidently expected that this publication of them as they now are, will be the last.

The commissioner asks for them the same consideration as before, indulging again in a stronger hope that public sentiment will approve his convictions, that the growth and efficiency of this department demand the enactment of a new and improved code of insurance laws, such as will enable this State to better protect her citizens and their property interests, to encourage and assist her enthusiastic and persistent insurers and their agents, to rid the State of irresponsible frauds, of infatuating wild-cat delusions, and to place New Hampshire on a par with her sister States, who are in the van of modern progress in insurance matters.

Respectfully submitted.

HENRY H. HUSE,

Insurance Commissioner.

NEW HAMPSHIRE
TOWN MUTUAL
FIRE INSURANCE COMPANIES.

ABSTRACTS OF ANNUAL REPORTS, WITH DETAILED STATEMENTS
OF RESOURCES AND LIABILITIES, FOR THE YEAR
ENDING DECEMBER 31, 1888.

[These companies charge no cash premium, but rely entirely upon assessments on deposit notes to pay losses and running expenses. The business of the Town Mutuals is generally confined to the limits of the town, and their risks are upon dwellings, farm buildings and their contents principally.]

ANTRIM MUTUAL FIRE INSURANCE COMPANY.

[Organization not reported. Commenced business January 4, 1886.]

J. F. TENNEY, *President*.C. E. HILLS, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$98.03	
Excess of expenditures over income	15.29	
		<hr/>
Total cash assets, December 31, 1888.....		\$82.74
Amount of premium notes assessable for losses.....		4,923.98
		<hr/>
Total resources (available and contingent).....		\$5,006.72

II. LIABILITIES.

Due for surrendered policies.....	\$1.30	
		<hr/>
Gross cash liabilities.....		\$1.30
		<hr/>
Cash surplus.....		\$81.44

III. INCOME.

Cash premiums received during the year.....	\$28.71	
Cash received on assessments.....	392.91	
From all other sources.....	10.50	
		<hr/>
Gross cash income.....		\$432.12

IV. EXPENDITURES.

Paid for losses during the year.....	\$400.00	
Officers' fees and expenses.....	15.00	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	1.25	
All other items.....	26.16	
		<hr/>
Gross cash expenditures.....		\$447.41
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$91,150.00
Premium notes, less assessments thereon.....	4,923.98
Losses incurred in 1888	400.00
Date of last assessment, 1888. Amount.....	392.91
Amount collected thereon.....	392.91
Number of policies issued in 1888, 14. Amount	15,950.00
Cash premiums received thereon.....	28.70
Amount of premium notes therewith	928.29
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 6 per cent of risk for five years.	
Cash premiums, 3 per cent of premium notes.	
Policy fee, 75 cents.	
No agents employed.	

BARNSTEAD MUTUAL FIRE INSURANCE COMPANY.

[Organized April 25, 1857. Commenced business June 15, 1857.]

IRA L. BERRY, *President.*

NATHANIEL S. NUTTER, *Secretary.*

I. RESOURCES.

Due on assessments believed to be collectible....	\$9.54
Due on assessments believed to be doubtful, \$10.94	
Total cash assets, December 31, 1888.....	\$9.54
Amount of premium notes assessable for losses.....	7,568.75
Total resources (available and contingent).....	\$7,578.29

II. LIABILITIES.

(None.)

Cash surplus.....	\$9.54
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III. INCOME.

Cash premiums received during the year.....	\$53.12	
Cash received on assessments.....	1,339.48	
From all other sources.....	41.01	
	<hr/>	
Gross cash income.....		\$1,433.61

IV. EXPENDITURES.

Paid for losses during the year.....	\$1,354.68	
Officers' fees and expenses.	41.23	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	2.00	
Paid for adjusting losses.....	14.25	
Paid for collecting assessments.....	38.16	
All other items.....	8.75	
	<hr/>	
Gross cash expenditures		\$1,464.07

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$134,131.00
Premium notes, less assessments thereon.....	7,568.75
Losses incurred in 1888.....	1,354.48
Date of last assessment, February 4, 1888. Amount.....	1,359.96
Amount collected thereon.....	1,339.48
Number of policies issued in 1888, 27. Amount.....	23,710.00
Cash premiums received thereon.....	53.12
Amount of premium notes therewith.....	1,776.67
Largest amount insured in a single risk.....	1,500.00
Rates charged for insurance, not given.	
Cash premiums, 3 per cent on premium notes.	
Policy fee, 50 cents.	
No agents employed.	

BEDFORD MUTUAL FIRE INSURANCE COMPANY.

[Organized, 1873. Commenced business, 1873.]

NATHANIEL B. HULL, *President.*SILAS A. RIDDLE, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$725.02	
Net income during the year.....	89.00	
		<hr/>
Total cash assets, December 31, 1888.....		\$814.02
Amount of premium notes assessable for losses.....		10,614.00
		<hr/>
Total resources (available and contingent).....		\$11,428.02

II. LIABILITIES.

(None.)

Cash surplus.....	\$814.02
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III. INCOME.

Cash premiums received during the year.....	\$64.54	
Interest on deposits or securities.....	30.46	
		<hr/>
Gross cash income.....		\$95.00

IV. EXPENDITURES.

Commissioner's fees.....	\$5.00	
Printing, stationery, and postage.....	1.00	
		<hr/>
Gross cash expenditures.....		\$6.00

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$91,050.00
Premium notes, less assessments thereon.....	10,614.00
Number of policies issued in 1888, 14. Amount.....	21,500.00
Cash premiums received thereon.....	64.54
Amount of premium notes therewith.....	2,151.33
Largest amount insured in a single risk	2,000.00
Rates charged for insurance, 10 to 12 per cent on amount insured.	
Cash premiums, 3 per cent of notes.	
Policy fee, 25 cents.	
No agents employed.	

BOW MUTUAL FIRE INSURANCE COMPANY.

[Organized May 25, 1850. Commenced business June 15, 1850.]

GEORGE W. SHORT, *President.*HARRISON COLBY, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$29.35
Net income during the year.....	9.32
	<hr/>
Total cash assets, December 31, 1888.....	\$38.67
Amount of premium notes assessable for losses.....	4,435.50
	<hr/>
Total resources (available and contingent).....	\$4,474.17

II. LIABILITIES.

(None.)

Cash surplus....	\$38.67
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III. INCOME.

Cash premiums received during the year.....	\$23.27
	<hr/>
Gross cash income.....	\$23.27

IV. EXPENDITURES.

Commissioner's fees.....	\$5.00
Printing, stationery, and postage.....	8.00
All other items.....	.95
	<hr/>
Gross cash expenditures....	\$13.95

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$88,710.00
Premium notes, less assessments thereon....	4,435.50
Date of last assessment, 1874. Amount.....	190.00
Amount collected thereon.....	190.00
Number of policies issued in 1888, 9. Amount.....	6,685.00
Cash premiums received thereon.....	6.68
Amount of premium notes therewith.....	334.25
Largest amount insured in a single risk.....	1,500.00
Rates charged for insurance, 5 per cent for six years.	
Cash premiums, 2 per cent on notes.	
Policy fee, 25 cents.	
No agents employed.	

CANDIA MUTUAL FIRE INSURANCE COMPANY.

[Organized May 6, 1859. Commenced business June 1, 1859.]

SAMUEL F. COLCORD, *President*.MOSES F. EMERSON, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$45.53
Net income during the year.....	11.52
	<hr/>
Total cash assets, December 31, 1888.....	\$57.05
Amount of premium notes assessable for losses.....	4,421.38
	<hr/>
Total resources (available and contingent).....	\$4,478.43

II. LIABILITIES.

(None.)

Cash surplus.....	\$57.05
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III. INCOME.

Cash premiums received during the year.....	\$19.98
	<hr/>
Gross cash income.....	\$19.98

IV. EXPENDITURES.

Officers' fees and expenses.....	\$3.00
Commissioner's fees.....	5.00
Printing, stationery, and postage.....	.46
	<hr/>
Gross cash expenditures.....	\$8.46

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$69,760.00
Premium notes, less assessments thereon.....	4,421.38
Date of last assessment, October 4, 1882. Amount.....	182.64
Amount collected thereon.. ..	182.64
Number of policies issued in 1888, 22. Amount.....	15,885.00
Cash premiums received thereon.....	19.98
Amount of premium notes therewith.....	1,035.10
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 6 to 8 per cent of amount insured.	
Cash premiums, 2 per cent on premium notes.	
Policy fee, 50 cents.	
No agents employed.	

CANTERBURY MUTUAL FIRE INSURANCE COMPANY.

[Organized June 30, 1849. Commenced business July 4, 1849.]

SAMUEL A. MORRILL, *President.*

JOSEPH G. CLOUGH, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$70.44
Excess of expenditures over income.....	43.02
	<hr/>
Total cash assets, December 31, 1888.	\$27.42
Amount of premium notes assessable for losses.....	8,353.53
	<hr/>
Total resources (available and contingent).....	\$8,380.95

II. LIABILITIES.

Due for borrowed money and interest.....	\$121.00
	<hr/>
Gross cash liabilities.....	\$121.00
	<hr/>
Cash deficiency.....	\$93.58

III. INCOME.

Cash premiums received during the year.....	\$34.40
Cash received on assessments.....	708.47
Borrowed money received.....	120.00
	<hr/>
Gross cash income.....	\$862.87

IV. EXPENDITURES.

Paid for losses during the year.....	\$875.00
Officers' fees and expenses.....	11.00
Commissioner's fees	5.00
Printing, stationery, and postage.....	.81
For making and collecting assessments, and cash premiums.....	\$11.96
Return premiums....	1.70
All other items.....	.42
	<hr/>
Gross cash expenditures.....	\$905.89

V. MISCELLANEOUS.

Risks outstanding December 31, 1888	\$144,705.00
Premium notes, less assessments thereon.....	8,353.53
Losses incurred in 1888.....	875.00
Date of last assessment, January, 1888. Amount.....	717.03
Amount collected thereon.....	708.47
Number of policies issued in 1888, 22. Amount.....	20,475.00
Cash premiums received thereon.....	34.40
Amount of premium notes therewith.....	1,170.00
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5, 5½, and 6 per cent.	
Cash premiums, 2 per cent on the amount of premium notes.	
Policy fee, 50 cents.	
No agents employed.	

DUNBARTON MUTUAL FIRE INSURANCE COMPANY.

[Organized December 12, 1843. Commenced business February 1, 1849.]

DANIEL H. PARKER, *President.* NATHANIEL T. SAFFORD, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$9.02
Excess of expenditures over income.....	4.48
	<hr/>
Total cash assets, December 31, 1888.....	\$4.54
Amount of premium notes assessable for losses.....	2,808.00
	<hr/>
Total resources (available and contingent).....	\$2,812.54

II. LIABILITIES.

(None.)

Cash surplus.....	\$4.54
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III. INCOME.

Cash premiums received during the year.....	<u>\$20.52</u>	
Gross cash income.....		\$20.52

IV. EXPENDITURES.

Officers' fees and expenses.....	\$11.00	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	8.00	
All other items.....	<u>1.00</u>	
Gross cash expenditures.....		<u>\$25.00</u>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$52,200.00
Premium notes, less assessments thereon.....	2,808.00
Date of last assessment, December 7, 1882. Amount.....	272.50
Amount collected thereon.....	272.50
Number of policies issued in 1888, 14. Amount.....	12,850.00
Cash premiums received thereon.....	20.52
Amount of premium notes therewith.....	684.75
Largest amount insured in a single risk.....	1,600.00
Rates charged for insurance, $4\frac{1}{2}$ to 7 per cent on amount insured.	
Cash premiums, 3 per cent of premium notes.	
Policy fee, 50 cents.	
No agents employed.	

FARMERS' MUTUAL FIRE INSURANCE COMPANY, FRANKLIN.

[Organization not reported. Commenced business April 6, 1888.]

HENRY A. WEYMOUTH, *President*. CHARLES N. EMERSON, *Secretary*.

I. RESOURCES.

Net income during the year.....	\$300.49	
Cash in hands of agents.....	7.65	
		<hr/>
Total cash assets, December 31, 1888.....		\$308.14
Amount of premium notes assessable for losses.....		2,111.10
		<hr/>
Total resources (available and contingent).....		\$2,419.24

II. LIABILITIES.

(None.)

Cash surplus.....	\$308.14
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III. INCOME.

Cash premiums received during the year.....	\$527.77	
		<hr/>
Gross cash income.....		\$527.77

IV. EXPENDITURES.

Officers' fees and expenses.....	\$44.64	
Commissioner and attorney's fees.....	7.00	
Printing, stationery, and postage.....	28.79	
Collecting cash premiums.....	137.85	
Return premiums.....	9.00	
		<hr/>
Gross cash expenditures.....		\$227.28
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$105,555.00
Premium notes, less assessments thereon.....	2,111.10

Number of policies issued in 1888, 134. Amount.....	\$105,555.00
Cash premiums received thereon.....	527.77
Amount of premium notes therewith.....	2,111.10
Largest amount insured in a single risk.....	1,500.00
Rates charged for insurance, 2 per cent for three years.	
Cash premiums, $\frac{1}{2}$ of 1 per cent of premium notes.	
Policy fee, \$1.00.	
No agents employed.	

HOLLIS MUTUAL FIRE INSURANCE COMPANY.

[Organized April 11, 1846. Commenced business June 1, 1846.]

EDWARD HARDY, *President.*

C. B. RICHARDSON, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888... ..	\$41.52
Net income during the year.....	22.55
Total cash assets, December 31, 1888.....	\$64.07
Amount of premium notes assessable for losses... ..	14,507.30
Total resources (available and contingent).....	\$14,571.37

II. LIABILITIES.

(None.)

Cash surplus.....	\$64.07
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III. INCOME.

Cash premiums received during the year.....	\$27.55
Gross cash income.....	\$27.55

IV. EXPENDITURES.

Commissioner's fees.....	\$5.00
Gross cash expenditures.....	\$5.00

IV. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$232,820.00
Premium notes, less assessments thereon.....	14,507.30
Date of last assessment, 1880. Amount.....	1,376.00
Amount collected thereon.....	1,376.00
Number of policies issued in 1888, 44. Amount.....	44,180.00
Cash premiums received thereon.....	27.55
Amount of premium notes therewith.....	2,755.00
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 6 and 10 per cent on amount insured.	
Cash premiums, 1 per cent on premium notes.	
Policy fee, 50 cents.	
No agents employed.	

LOUDON MUTUAL FIRE INSURANCE COMPANY.

[Organization not reported. Commenced business November 17, 1877.]

E. H. ROBINSON, *President*.

LUCRATUS M. SANBORN, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$143.49
Net income during the year.....	4.70
Due on assessments collectible.....	29.65
Total cash assets, December 31, 1888.....	\$177.84
Amount of premium notes assessable for losses.....	4,363.45
Total resources (available and contingent)	\$4,541.29

II. LIABILITIES.

Losses adjusted but not paid.....	\$46.20
Due officers for services and expenses.....	3.00
Gross cash liabilities.....	\$49.20
Cash surplus.....	\$177.34

III. INCOME.

Cash premiums received during the year	\$12.43	
Cash received on assessments.....	1,759.05	
Interest on deposits or securities.....	6.52	
	<hr/>	
Gross cash income.....		\$1,778.00

IV. EXPENDITURES.

Paid for losses during the year.....	\$1,743.80	
Officers' fees and expenses.....	23.00	
Commissioner's fees.....	5.00	
Paid for collecting assessments.....	1.50	
	<hr/>	
Gross cash expenditures.....		\$1,773.30

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$88,780.00
Premium notes, less assessments thereon.....	4,363.45
Losses incurred in 1888.....	1,775.00
Assessments in 1888: July 9, \$271.17, March 20, \$1,517.56..	1,788.38
Amount collected thereon	1,759.07
Number of policies issued in 1888, 13. Amount.....	13,795.00
Cash premiums received thereon.....	13.77
Amount of premium notes therewith	688.75
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5 per cent on amount insured.	
Cash premiums, 2 per cent on amount of premium notes.	
Policy fee, 50 cents.	
No agents employed.	

LYNDEBOROUGH MUTUAL FIRE INSURANCE COMPANY.

[Organized May 3, 1862. Commenced business June 2, 1862.]

JOEL H. TARBELL, *President.*

JOHN H. GOODRICH, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$103.66	
Net income during the year.....	.12	
	<hr/>	
Total cash assets, December 31, 1888.....		\$103.78
Amount of premium notes assessable for losses.....		6,913.50
		<hr/>
Total resources (available and contingent).....		\$7,017.28

II. LIABILITIES.

(None.)

Cash surplus.....	\$103.78
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III. INCOME.

Cash premiums received during the year.....	\$27.94	
	<hr/>	
Gross cash income.....		\$27.94

IV. EXPENDITURES.

Officers' fees and expenses.....	\$12.68	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	10.14	
	<hr/>	
Gross cash expenditures.....		\$27.82
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$115,225.00
Premium notes, less assessments thereon.....	6,913.50
Date of last assessment, October 15, 1881. Amount.....	418.84
Amount collected thereon.....	418.84

Number of policies issued in 1888, 19. Amount.....	\$15,525.00
Cash premiums received thereon.....	27.94
Amount of premium notes therewith.....	931.50
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 6 per cent on amount insured.	
Cash premiums, 3 per cent on notes.	
Policy fee, 25 cents.	
No agents employed.	

MILFORD MUTUAL FIRE INSURANCE COMPANY.

[Commenced business July 1, 1861.]

B. F. HUTCHINSON, *President.*

F. W. RICHARDSON, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$1,017.56
Net income during the year.....	182.69
Total cash assets, December 31, 1888.....	\$1,200.25
Amount of premium notes assessable for losses.....	15,420.50
Total resources (available and contingent).....	\$16,620.75

II. LIABILITIES.

(None.)

Cash surplus.....	\$1,200.25
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III. INCOME.

Cash premiums received during the year.....	\$145.75
From all other sources.....	50.14
Gross cash income.....	\$195.89

IV. EXPENDITURES.

Commissioner's fees.....	\$5.00
Printing, stationery, and postage.....	1.80
Return premiums.....	6.40
Gross cash expenditures	\$13.20

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$155,525.00
Premium notes, less assessments thereon.....	15, 420.50
No assessment has been made since organization, twenty-seven years ago.	
Number of policies issued in 1888, 23. Amount.....	28,300.00
Cash premiums received thereon.....	145.75
Amount of premium notes therewith.....	2,915.00
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, premium note for 10 per cent of amount insured for five years.	
Cash premiums, 5 per cent of notes.	
Policy fee, \$1.00.	
No agents employed.	

NEW LONDON FARMERS' FIRE INSURANCE COMPANY.

[Organized April 12, 1886. Commenced business May 8, 1886.]

JOHN K. LAW, *President.*

BAXTER GAY, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888	\$69.47
Net income during the year.....	35.47
Total cash assets, December 31, 1888.....	\$104.94

(This company has no premium notes nor any limitation to the liability of its policy-holders for the entire amount of its fire losses and other liabilities.)

II. LIABILITIES.

(None.)

Cash surplus.....	\$104.94
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III. INCOME.

Cash premiums received during the year.....	\$44.95	
Interest on deposits or securities.....	.77	
	<hr/>	
Gross cash income.....		\$45.72

IV. EXPENDITURES.

Officers' fees and expenses.....	\$5.25	
Commissioner's fees	5.00	
	<hr/>	
Gross cash expenditures.....		\$10.25

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$65,519.00
Number of policies issued in 1888, 21. Amount....	17,984.00
Cash premiums received thereon.....	44.95
Largest amount insured in a single risk.....	1,500.00
Rates charged for insurance, $\frac{1}{4}$ of 1 per cent on amount insured, in cash, and an unlimited assessment for the payment of losses.	
No agents employed.	

NORTHWOOD MUTUAL FIRE INSURANCE
COMPANY.

[Organization not reported. Commenced business July 20, 1861.]

EZRA TASKER, *President*.SAMUEL S. JAMES, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$25.35	
Net income during the year.....	56.01	
Cash in the hands of agents.....	83.10	
	<hr/>	
Total cash assets, December 31, 1888.....		\$164.46
Amount of premium notes assessable for losses.....		16,514.92
		<hr/>
Total resources (available and contingent).....		\$16,679.38

II. LIABILITIES.

Due for borrowed money and interest.....	\$218.00	
Gross cash liabilities.....		\$218.00
Cash deficiency.....		\$53.54

III. INCOME.

Cash premiums received during the year.....	\$84.62	
Cash received on assessments.....	546.81	
From all other sources.....	44.84	
Gross cash income.....		\$676.27

IV. EXPENDITURES.

Paid for losses during the year.....	\$394.10	
Officers' fees and expenses.....	116.66	
Commissioner's fees.....	5.00	
Borrowed money and interest.....	104.50	
Gross cash expenditures.....		\$620.26

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$302,587.00
Premium notes, less assessments thereon.....	16,514.92
Losses incurred in 1888.....	19.10
Date of last assessment, November 29, 1887. Amount.....	550.28
Amount collected thereon.....	546.81
Number of policies issued in 1888, 55. Amount.....	52,643.00
Cash premiums received thereon.....	84.62
Amount of premium notes therewith.....	2,820.66
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5 to 10 per cent on amount insured.	
Cash premiums, 3 per cent on premium notes.	
Policy fee and application, \$1.00.	
No agents employed.	

ORFORD MUTUAL FIRE INSURANCE COMPANY.

[Organized January 26, 1886. Commenced business March 13, 1886.]

JOHN BICKFORD, *President.*BENJAMIN F. TRUSSELL, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$43.21
Net income during the year.....	10.35
	<hr/>
Total cash assets, December 31, 1888.....	\$53.56
Amount of premium notes assessable for losses	6,173.50
	<hr/>
Total resources (available and contingent).....	\$6,227.06

II. LIABILITIES.

(None.)

Cash surplus.....	\$53.56
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III. INCOME.

Cash premiums received during the year.....	\$48.28
	<hr/>
Gross cash income.....	\$48.28

IV. EXPENDITURES.

Officers' fees and expenses.....	\$33.00
Printing, stationery, and postage.....	2.24
All other items.....	2.69
	<hr/>
Gross cash expenditures.....	\$37.93
	<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$119,035.00
Premium notes, less assessments thereon.....	6,173.50
No losses incurred in 1888.	
No assessment made since organization.	
Number of policies issued in 1888, 26. Amount... ..	31,725.00

Cash premiums received thereon.....	\$48.28
Amount of premium notes therewith.....	1,636.25
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5 to 15 per cent on amount insured.	
Cash premiums, 3 per cent of premium notes.	
Policy fee, not reported.	
No agents employed.	

PIERMONT MUTUAL FIRE INSURANCE COMPANY.

[Organized February 25, 1871. Commenced business February 25, 1871.]

H. H. PALMER, *President*.

L. E. RISLEY, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$19.57
Net income during the year....	.29
Cash value of safe.....	\$50.00
Total cash assets, December 31, 1888.....	\$19.86
Amount of premium notes assessable for losses	8,882.57
Total resources (available and contingent).....	\$8,902.43

II. LIABILITIES.

(None.)

Cash surplus.....	\$19.86
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III. INCOME.

Cash premiums received during the year.....	\$30.79
Cash received for policy fees	10.00
Gross cash income.....	\$40.79

IV. EXPENDITURES.

Officers' fees and expenses.....	\$35.00	
Commissioner's fees.	5.00	
Printing, stationery, and postage.....	.50	
		<hr/>
Gross cash expenditures		\$40.50
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$138,505.00
Premium notes, less assessments thereon.....	8,882.57
Date of last assessment, December 31, 1884. Amount.....	97.82
Amount collected thereon.....	95.82
Number of policies issued in 1888, 20. Amount.....	15,810.00
Cash premiums received thereon.....	30.79
Amount of premium notes therewith.....	990.43
Largest amount insured in a single risk.....	2,500.00
Rates charged for insurance, 5 to 20 per cent on amount insured.	
Cash premiums, 3 per cent on premium notes.	
Policy fee, 50 cents.	
No agents employed.	

SANBORNTON MUTUAL FIRE INSURANCE COMPANY.

[Organized March 28, 1874. Commenced business September 1, 1875.]

JONATHAN M. TAYLOR, *President.* HERBERT J. L. BODWELL, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$930.00	
Excess of expenditures over income during the year.....	1.58	
		<hr/>
Total cash assets, December 31, 1888.....		\$928.42
Amount of premium notes assessable for losses.....		7,303.00
		<hr/>
Total resources (available and contingent).....		\$8,231.42

II. LIABILITIES.

Due officers for services and expenses.....	\$12.00	
Due for printing.....	2.50	
	<hr/>	
Gross cash liabilities.....		\$14.50
		<hr/>
Cash surplus.....		\$913.92

III. INCOME.

Cash premiums received during the year.....	\$115.05	
Interest on deposits or securities.....	34.24	
	<hr/>	
Gross cash income.....		\$149.29

IV. EXPENDITURES.

Paid for losses during the year.....	\$3.00	
Officers' fees and expenses.....	40.32	
Commissioner's fees.....	5.00	
Return premiums.....	102.55	
	<hr/>	
Gross cash expenditures.....		\$150.87
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$146,075.00
Premium notes, less assessments thereon.....	7,303.00
Losses incurred in 1888.....	3.00
No assessments have been made since date of organization.	
Number of policies issued in 1888, 21. Amount.....	23,010.00
Cash premiums received thereon.....	115.05
Largest amount insured in a single risk.....	2,500.00
Rates charged for insurance, 5 per cent of amount insured for six years.	
Cash premiums, $\frac{1}{2}$ of 1 per cent on notes.	
Policy fee, 25 cents.	
No agents employed.	

STRAFFORD MUTUAL FIRE INSURANCE COMPANY.

[Organized January 1, 1853. Commenced business January 3, 1853.]

HENRY F. AMBLER, *President.*

GEORGE F. JOHNSON, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$129.19	
Excess of expenditures over income during the year.....	92.07	
Balance of cash on hand, December 31, 1888	\$37.12	
Assessments due and collectible.....	812.62	
Total cash assets, December 31, 1888.....		\$849.74
Amount of premium notes assessable for losses.....		9,133.24
Total resources (available and contingent).....		\$9,982.98

II. LIABILITIES.

Losses adjusted and not paid.....	\$701.22	
Gross cash liabilities.....		\$701.22
Cash surplus.....		\$148.52

III. INCOME.

Cash received during the year.....	\$153.27	
Cash received on assessments	2,342.00	
Gross cash income.....		\$2,495.27

IV. EXPENDITURES.

Paid for losses during the year.....	\$2,390.78	
Officers' fees and expenses.....	54.25	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	6.70	
Return premiums.....	90.77	
Making assessments.....	8.00	
All other items.....	31.84	
Gross cash expenditures..		\$2,587.34

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$160,864.00
Premium notes, less assessments thereon.....	9,133.24
Losses incurred in 1888.....	3,292.00
Date of assessments in 1888: July 14, \$1,285.30, and Jan- uary 7, \$1,946.14.....	3,231.44
Amount collected thereon.....	2,393.00
Number of policies issued in 1888, 123. Amount.....	115,490.00
Cash premiums received thereon....	199.80
Amount of premium notes therewith.....	6,660.15
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5 to 8 per cent on amount insured.	
Cash premiums, 3 per cent of policy notes.	
Policy fee and application, \$1.00.	
No agents employed.	

SUNAPEE MUTUAL FIRE INSURANCE COMPANY.

[Organization not reported. Commenced business February 8, 1868.]

C. A. KNOWLTON, *President*.

E. R. BOYCE, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888.....	\$275.79
Net income during the year.....	84.67
Total cash assets, December 31, 1888.....	\$360.46
Amount of premium notes assessable for losses.....	5,471.19
Total resources (available and contingent).....	\$5,831.65

II. LIABILITIES.

(None.)

Cash surplus.....	\$360.46
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III. INCOME.

Cash premiums received during the year.....	\$125.67	
Interest on deposits or securities.....	10.00	
	<hr/>	
Gross cash income.....		\$135.67

IV. EXPENDITURES.

Officers' fees and expenses.....	\$51.00	
	<hr/>	
Gross cash expenditures.....		\$51.00
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$97,395.00
Premium notes, less assessments thereon.....	5,471.19
No assessments made since organization.	
Number of policies issued in 1888, 51. Amount.....	37,050.00
Cash premiums received thereon.....	125.67
Amount of premium notes therewith	2,580.20
Largest amount insured in a single risk.....	1,600.00
Rates charged for insurance, $\frac{1}{4}$ of 1 per cent on farm risks.	
Cash premiums not given.	
Policy fee, \$1.00.	
No agents employed.	

SUTTON MUTUAL FIRE INSURANCE COMPANY.

[Organized September 15, 1849. Commenced business September 15, 1849.]

MOSES S. BLAISDELL, *President.*

ALBERT NELSON, *Secretary.*

I. RESOURCES.

Due on assessments and for policies.....	\$18.36	
	<hr/>	
Total cash assets, December 31, 1888.....		\$18.36
Amount of premium notes assessable for losses.....		10,032.40
		<hr/>
Total resources (available and contingent).....		\$10,050.76

II. LIABILITIES.

Due for borrowed money.....	\$26.25	
Gross cash liabilities.....		\$26.25
Cash deficiency.....		\$7.89

III. INCOME.

Cash premiums received during the year.....	\$37.33	
Cash received on assessments.....	988.01	
Borrowed money received.....	26.25	
Gross cash income.....		\$1,051.59

IV. EXPENDITURES.

Paid for losses during the year.....	\$1,000.00	
Officers' fees and expenses.....	58.00	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	2.72	
Gross cash expenditures.....		\$1,065.72

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$107,564.00
Premium notes, less assessments thereon.....	10,032.40
Losses incurred in 1888.....	1,000.00
Date of last assessment, October 27, 1888. Amount.....	1,003.21
Amount collected thereon.....	988.01
Number of policies issued in 1888, 30. Amount.....	19,685.00
Cash premiums received thereon.....	37.33
Amount of premium notes therewith.....	1,891.80
Rates charged for insurance, 3 to 15 per cent.	
Cash premiums, 1½ per cent of notes.	
Policy fee, 12½ cents.	
No agents employed.	

TILTON & NORTHFIELD MUTUAL FIRE INSURANCE COMPANY.

[Organized November 26, 1887. Commenced business December 10, 1887.]

GEORGE H. BROWN, *President.*

JAMES N. FORREST, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$481.67
Net income during the year.....	122.59
Total cash assets, December 31, 1888.....	\$604.26
Amount of premium notes assessable for losses.....	6,292.95
Total resources (available and contingent).....	\$6,897.21

II. LIABILITIES.

(None.)

Cash surplus.....	\$604.26
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III. INCOME.

Cash premiums received during the year.....	\$118.62
Interest on deposits or securities.....	16.68
From all other sources.....	5.50
Gross cash income.....	\$140.80

IV. EXPENDITURES.

Officers' fees and expenses.....	\$6.60
Commissioner's fees.....	5.00
Printing, stationery, and postage.....	1.25
Return premiums.....	5.36
Gross cash expenditures.....	\$18.21

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$125,859.00
Premium notes, less assessments thereon.....	6,292.95

No assessment made since organization.

Number of policies issued in 1888, 22. Amount..... \$23,724.00

Cash premiums received thereon..... 118.62

Amount of premium notes therewith..... 1,186.20

Largest amount insured in a single risk..... 2,500.00

Rates charged for insurance, 5 per cent of amount insured.

Cash premiums, $\frac{1}{2}$ of 1 per cent on amount insured.

Policy fee, 25 cents.

No agents employed.

UNITY MUTUAL FIRE INSURANCE COMPANY.

[Organized August 29, 1862. Commenced business September 15, 1862.]

SELEM SLEEPER, *President*.

B. F. FRENCH, *Secretary*.

I. RESOURCES.

Cash on hand January 1, 1888..... \$31.73

Excess of expenditures over income 31.27

Total cash assets, December 31, 1888..... \$0.46

Amount of premium notes assessable for losses..... 3,637.40

Total resources (available and contingent)..... \$3,637.86

II. LIABILITIES.

Losses reported, not adjusted..... \$800.00

Gross cash liabilities..... \$800.00

III. INCOME.

Cash premiums received during the year..... \$3.79

Cash received on assessments..... 368.59

Gross cash income..... \$372.38

IV. EXPENDITURES.

Paid for losses during the year.....	\$342.00
Officers' fees and expenses.....	11.15
Commissioner, auditor, and attorney's fees	15.00
Adjusting losses.....	20.00
Making and collecting assessments.....	15.50
	<hr/>
Gross cash expenditures.....	\$403.65
	<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$65,685.00
Premium notes, less assessments thereon.....	3,637.40
Losses incurred in 1888	1,142.00
Date of last assessment, May 12, 1888. Amount.....	395.59
Amount collected thereon.....	368.59
Number of policies issued in 1888, 10. Amount.....	6,810.00
Amount of premium notes therewith.....	390.80
Cash premiums received thereon.....	3.79
Largest amount insured in a single risk.....	1,000.00
Rates charged for insurance, 3 to 12 per cent of amount insured.	
Cash premiums, 1 per cent on notes.	
Policy fee, 25 cents.	
No agents employed.	

WEARE MUTUAL FIRE INSURANCE COMPANY.

[Organized October 14, 1856. Commenced business January 5, 1857.]

WILLIAM T. MORSE, *President.*

HIRAM BUSWELL, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$106.91
Net income during the year.....	2.08
Assessments due and collectible	708.47
	<hr/>
Total cash assets, December 31, 1888.....	\$817.46
Amount of premium notes assessable for losses.....	28,577.50
	<hr/>
Total resources (available and contingent).....	\$29,394.96

II. LIABILITIES.

Losses adjusted but not paid.....	\$585.00	
Collecting assessments (estimated).....	50.00	
	<hr/>	
Gross cash liabilities.....		\$635.00
		<hr/>
Cash surplus.....		\$182.46

III. INCOME.

Cash premiums received during the year.....	\$133.28	
Cash received on assessments.....	915.00	
Interest on deposits or securities.....	6.41	
Borrowed money received.....	708.47	
	<hr/>	
Gross cash income.....		\$1,763.16

IV. EXPENDITURES.

Paid for losses during the year.....	\$915.00	
Officers' fees and expenses.	81.50	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	9.26	
Borrowed money and interest.....	713.32	
Collecting cash premiums.....	24.00	
All other items: Adjusting losses, \$5.00, making assessments, \$8.00.....	13.00	
	<hr/>	
Gross cash expenditures		\$1,761.08
		<hr/> <hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$381,245.00
Premium notes, less assessments thereon.....	28,577.50
Losses incurred in 1888.....	1,500.00
Date of last assessment, September 5, 1888. Amount.....	1,623.47
Amount collected thereon.....	915.00
Number of policies issued in 1888, 96. Amount.....	84,475.00
Cash premiums received thereon.....	133.28
Largest amount insured in a single risk.....	1,500.00
Rates charged for insurance not reported.	
Cash premiums, 2 per cent on notes.	
Policy fee, 50 cents.	
No agents employed.	

WESTMORELAND FIRE INSURANCE ASSOCIATION.

[Organized April 8, 1876. Commenced business May 15, 1876.]

LEONARD WILCOX, *President.*WILLARD BILL, JR., *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$75.71
Income during the year.....	18.89
	<hr/>
Total cash assets, December 31, 1888.....	\$94.60
Amount of premium notes assessable for losses.....	10,672.75
	<hr/>
Total resources (available and contingent).....	\$10,767.35

II. LIABILITIES.

(None.)

Cash surplus.....	\$94.60
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III. INCOME.

Cash premiums received during the year.....	\$60.16
	<hr/>
Gross cash income.....	\$60.16

IV. EXPENDITURES.

Paid for losses during the year.....	\$5.00
Officers' fees and expenses.....	25.00
Commissioner's fees	10.00
Return premiums.....	1.27
	<hr/>
Gross cash expenditures.....	\$41.27
	<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$99,565.00
Premium notes, less assessments thereon.....	10,672.75
Losses incurred in 1888.....	5.00

Date of last assessment, 1879. Amount	\$883.00
Amount collected thereon.....	883.00
Number of policies issued in 1888, 29. Amount.....	13,800.00
Cash premiums received thereon.....	60.16
Amount of premium notes therewith.....	2,875.00
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance: Note, 10 per cent, 1st class; 15 to 20 per cent, 2d; 20 to 50 per cent, 3d class.	
Cash premiums, $\frac{1}{2}$ of 1 per cent on notes.	
Policy fee, 50 cents.	
No agents employed.	

WILMOT MUTUAL FIRE INSURANCE COMPANY.

[Organization not reported. Commenced business April 2, 1858.]

SYLVESTER BUNKER, *President.*

G. E. WOODWARD, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$11.53
Net income during the year.....	12.76
Total cash assets, December 31, 1888.....	\$24.29
Amount of premium notes assessable for losses.....	3,644.50
Total resources (available and contingent).....	\$3,668.79

II. LIABILITIES.

(None.)

Cash surplus.....	\$24.29
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III. INCOME.

Cash premiums received during the year.....	\$38.36
From all other sources.....	1.40
Gross cash income	\$39.76

IV. EXPENDITURES.

Officers' fees and expenses.....	\$22.00	
Commissioner's fees.....	5.00	
	<hr/>	
Gross cash expenditures.....		\$27.00
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$60,300.00
Premium notes, less assessments thereon.....	3,644.50
Date of last assessment, December 25, 1884. Amount.....	622.60
Amount collected thereon.....	606.28
Number of policies issued in 1888, 22. Amount.....	15,200.00
Cash premiums received thereon.....	38.36
Amount of premium notes therewith.....	1,278.66
Largest amount insured in a single risk.....	1,400.00
Rates charged for insurance not reported.	
Cash premiums, 3 per cent of premium notes.	
Policy fee, 50 cents.	
No agents employed.	

NEW HAMPSHIRE
MUTUAL
FIRE INSURANCE COMPANIES.

ABSTRACTS OF ANNUAL REPORTS, WITH DETAILED STATEMENTS
OF RESOURCES AND LIABILITIES, FOR THE YEAR
ENDING DECEMBER 31, 1888.

[These companies rely upon assessments, instead of cash premiums, for the payment of fire losses, and include the Grange Mutual Fire Insurance Company, organized in March, 1888, whose membership is wholly within the State Grange of the Patrons of Husbandry.]

GRANGE MUTUAL FIRE INSURANCE COMPANY.

[Organized March 28, 1888. Commenced business July 20, 1888.]

CHARLES McDANIEL, *President.*E. C. HUTCHINSON, *Secretary.*

I. RESOURCES.

Net income during the year.....	\$1,128.52	
Cash premiums collectible.....	64.50	
		<hr/>
Total cash assets, December 31, 1888.....		\$1,193.02
Amount of premium notes assessable for losses.....		11,304.00
		<hr/>
Total resources (available and contingent)		\$12,497.02

II. LIABILITIES.

(None.)

Cash surplus.....	\$1,193.02
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III. INCOME.

Cash premiums received during the year.....	\$1,695.40	
	<hr/>	
Gross cash income.....		\$1,695.40

IV. EXPENDITURES.

Officers' fees and expenses.....	\$284.53	
Printing, stationery, and postage.....	90.13	
Obtaining applications and collecting cash pre- miums.....	145.50	
All other items.....	46.72	
	<hr/>	
Gross cash expenditures.....		\$566.88
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$376,800.00
Amount of policy stipulations, less assessments thereon....	11,304.00
Number of policies issued in 1888, 301. Amount.....	376,800.00
Cash premiums received thereon.....	1,695.40
Policy stipulations therewith.....	11,304.00
Rates charged for insurance, 3 per cent on amount insured for three years.	
Cash premiums, $\frac{1}{2}$ of 1 per cent on amount insured.	
Policy fee, 50 cents.	

AGENTS.

John Ayer, William A. Andrews, Daniel G. Annis, Samuel Adams, Wallace Burleigh, John M. Ballou, Orson S. Bartlett, Charles R. Brown, Nathan B. Bly, John T. Breck, Amos M. Bryant, George P. Bennett, C. O. Barney, Charles N. Clough, James M. Connor, Edwin Downs, J. H. Walker, Frank E. Doe, Veron Eaton, Noah G. Edmonds, Stephen S. Ford, Fred P. Fletcher, George E. Fellows, Adolphus G. Foster, F. Hale Flanders, Charles F. Felker, Fred W. Flint, John W. Farr, Andrew P. Gilman, B. H. Griffiths, Gilman C. George, J. A. Goodwin, E. C. Hutchinson, George W. Hurd, James C. Ham, Thomas E. Hunt, Herbert O. Hadley, Frank K. Jewett, George R. Jennison, Israel A. Loveland,	Claremont. Hudson. N. Londonderry. Dublin. Franklin. East Rindge. Derry. Deerfield. South Newbury. Lebanon. Enfield Center. New Boston. East Canaan. Boscawen. Hopkinton. West Andover. Short Falls. New Durham. Mason. Chichester. Pembroke. Barnstead. Salisbury. Hancock. East Andover. Strafford Corner. Hillsboro' Br. Littleton. Sanbornton. Stoddard. Warner. Whitefield. Milford. Newport. Gilmanton I. W. Lake Village. Temple. Munsonville. Walpole. Gilsun.	E. Gerry Ladd, Martin L. Lord, L. L. Mower, Charles Mason, R. A. Moore, Solomon Manning, B. E. Martin, Isaac Newton, William Moore, Henry J. Osgood, E. H. Patch, Charles A. Preston, Fred B. Palmer, Howard E. Priest, Charles H. Pettee, Ward Parker, Amos B. Page, Thomas S. Pulsifer, E. O. Perkins, R. C. Rollins, Harrison A. Rice, Jacob Sanborn, James Sheldon, Hermon G. Smith, Robert L. Smiley, Henry O. Spaulding, Edmond Stone, Albert B. Stevens, C. M. Stratton, Silas P. Thompson, Alvin Tubbs, Edelbert J. Temple, Frank P. Wentworth, Aaron S. Wilkins, Charles F. Waterhouse, Thomas H. White, D. P. Walker, E. F. Wiggin, Frank H. Weld,	Belmont. Dover. Concord. Marlborough. North Monroe. Bedford. East Jaffrey. Alstead. Peterborough. Loudon. Francestown. Bank Village. Lyme Center. Nashua. Hanover. Reed's Ferry. Manchester. Plymouth. Pittsfield. New Hampton. Henniker. Lake Village. Wilton. W. Chesterfield. Sutton. Keene. Swanzey. Canaan. Hollis. Hill. Deering. Hinsdale. Rochester. Amherst. Barrington. Harrisville. N. Dunbarton. Meredith Vil. Cornish.
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MERRIMACK COUNTY MUTUAL FIRE INSURANCE COMPANY OF WEBSTER.

[Organized March 27, 1877. Commenced business March 31, 1877.]

FRANCIS B. SAWYER, *President.*

SHERMAN LITTLE, *Secretary.*

I. RESOURCES.

Cash on hand January 1, 1888.....	\$264.82	
Net income during the year.....	107.35	
		<hr/>
Total cash assets, December 31, 1888.....		\$372.17
Amount of premium notes assessable for losses.....		20,686.77
		<hr/>
Total resources (available and contingent).....		\$21,058.94

II. LIABILITIES.

(None.)

Cash surplus.....	\$372.17
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III. INCOME.

Cash premiums received during the year.....	\$315.58	
		<hr/>
Gross cash income.....		\$315.58

IV. EXPENDITURES.

Officers' fees and expenses	\$95.00	
Commissioner's fees.....	5.00	
Printing, stationery, and postage.....	17.94	
Agent's fees for collecting cash premiums.....	81.00	
Return premiums.....	5.94	
All other items.....	3.35	
		<hr/>
Gross cash expenditures.....		\$208.23
		<hr/>

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$379,584.00
Premium notes, less assessments thereon.....	20,686.77
Date of last assessment, April 14, 1885. Amount	1,127.94
Amount collected thereon.....	1,127.94
Number of policies issued in 1888, 108. Amount.....	118,675.00
Cash premiums received thereon.....	315.58
Amount of premium notes therewith.....	6,435.13
Largest amount insured in a single risk.....	2,000.00
Rates charged for insurance, 5 to 7 per cent of amount at risk.	
Cash premiums, 4 per cent of premium notes.	
Policy fee, 50 cents.	

AGENTS.

Walter Sargent,
J. Albert Peaslee,

Warner.
Bradford.

Gilman A. Stevens,
Joseph D. Philbrick,

Contoocook.
East Andover.

ROCKINGHAM FARMERS' MUTUAL FIRE INSURANCE COMPANY.

[Organized June 27, 1833. Commenced business June, 1833.]

GEORGE B. WEBSTER, *President*.

HENRY A. SHUTE, *Secretary*.

Principal office, Exeter.

I. RESOURCES.

Cash on hand January 1, 1888...	\$666.31	
Excess of expenditures over income.....	281.55	
		\$384.76
Unpaid assessments on policy notes.....		378.21
Cash in hands of agents.....		722.55
		<hr/>
Total cash assets, December 31, 1888.....		\$1,485.52
Amount of premium notes assessable for losses...		221,411.49
		<hr/>
Total resources (available and contingent).....		\$222,897.01

II. LIABILITIES.

Losses adjusted but not paid.....	\$350.00	
Due for borrowed money and interest.....	5,913.10	
		<hr/>
Gross cash liabilities.....		\$6,263.10
		<hr/>
Assessable indebtedness.....		\$4,777.58

III. INCOME.

Cash premiums received during the year.....	\$1,018.85	
Cash received on assessments.....	1,352.24	
Cash received on loans.....	3,766.50	
Cash received on surrendered notes.....	7.87	
		<hr/>
Gross cash income.....		\$6,145.46

IV. EXPENDITURES.

Paid for losses during the year.....	\$3,033.83	
Officers' fees and expenses.....	500.00	
Commissioner, auditor, and attorney's fees.....	30.00	
Printing, stationery, and postage.....	168.63	
Paid for adjusting losses.....	149.60	
for collecting assessments.....	243.92	
for collecting cash premiums.....	174.00	
for returned premiums.....	18.04	
for borrowed money and interest.....	2,014.05	
for office rent, fuel, and express.....	69.04	
All other items.....	25.90	
		<hr/>
Gross cash expenditures.....		\$6,427.01

V. MISCELLANEOUS.

Risks outstanding December 31, 1888.....	\$3,890,699.00
Premium notes, less assessments thereon.....	221,411.49
Losses incurred in 1888.....	3,383.83
Date of last assessment, September 5, 1887. Amount.....	12,715.06
Amount collected thereon.....	11,736.85
Number of policies issued in 1888, 678. Amount.....	770,703.00
Cash premiums received thereon.....	1,018.85
Amount of premium notes therewith.....	44,775.48
Largest amount insured in a single risk.....	2,500.00
Rates charged for insurance, 5, 5½, or 6 per cent on amount insured.	
Cash premiums, 3 per cent of premium notes.	
Policy fee, 50 cents.	

NEW HAMPSHIRE
CASH MUTUAL
FIRE INSURANCE COMPANIES.

COMPILED FROM THE ANNUAL REPORTS, WITH STATEMENTS OF
ASSETS AND LIABILITIES, AND NAMES OF AGENTS,
FOR THE YEAR ENDING DECEMBER 31, 1888.

ÆTNA MUTUAL FIRE INSURANCE COMPANY.

[Organized July 22, 1886. Incorporated July 21, 1887. Commenced business
August 1, 1886.]

FRANK A. MCKEAN, *President*.

OBADIAH MORRILL, *Secretary*.

Principal office, Concord.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$8,340.00
Value of lands mortgaged.....	\$20,700.00
Value of buildings thereon.....	9,676.00
Insurance held as collateral.....	3,800.00
Cash in company's office.....	151.55
Cash deposited in banks:	
First National Bank.....	\$1,432.91
Union Guaranty Savings Bank.....	1,030.00
Deposited with E. H. Rollins & Son, bankers	1,029.17
	<hr/>
	\$3,492.08
Interest due and accrued.....	194.42
Premiums in course of collection.....	999.17
	<hr/>
Gross available assets....	\$13,177.22
Assessable contingent premiums on outstanding risks, \$31,942.06.	

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$180.56
Losses reported, but not adjusted.....	1,000.00
	<hr/>
Net amount of unpaid losses.....	\$1,180.56
Unearned premiums taken at 50 per cent of gross premiums	8,232.99
Commissions on premiums in course of collection.....	188.89
Rents, taxes, salaries, and incidental expenses.....	629.21
	<hr/>
Liabilities, except surplus.....	\$10,231.65
Surplus.....	2,945.57
	<hr/>
Gross liabilities, including surplus.....	\$13,177.22
	<hr/>

III. INCOME.

Cash received for gross premiums.....	\$16,973.09	
Deduct re-insurance and return premiums.....	1,005.99	
	<hr/>	
Net cash premiums received during the year.....		\$15,967.10
Interest and dividends from all sources.....		453.37
		<hr/>
Gross cash income.....		\$16,420.47
Contingent premiums received during the year, \$32,366.28.		

IV. EXPENDITURES.

Gross amount paid for losses.....	\$8,211.14	
Deduct amount received for re-insurance.....	7.68	
	<hr/>	
Net amount paid for losses during the year.....		\$8,203.46
Commissions on premiums.....		3,008.84
Salaries and fees of officers and employees.....		212.53
State and local taxes.....		5.00
Office and incidental expenses.....		526.95
Paid interest accrued on securities purchased.....		37.23
		<hr/>
Gross cash expenditures.....		\$11,994.01
		<hr/>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$796,904.52	\$14,703.99	\$29,910.98
Risks written during the year....	896,423.63	16,973.09	32,366.28
	<hr/>	<hr/>	<hr/>
Total.....	\$1,693,328.15	\$31,677.08	\$62,277.26
Risks terminated during the year.	777,589.82	15,167.60	30,335.20
	<hr/>	<hr/>	<hr/>
In force at end of the year..	\$915,738.33	\$16,509.48	\$31,942.06
Deduct amount re-insured.....	2,000.00	43.50	
	<hr/>	<hr/>	<hr/>
Amount in force Dec. 31, '88	\$913,738.33	\$16,465.98	\$31,942.06
Cash received of other companies for insurance.....			\$332.55
Contingent premiums on outstanding risks, less assessments paid thereon.....			31,942.06
Losses incurred during the year.....			6,598.55

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$782,461.13
Cash premiums received.....	14,799.30

Contingent premiums therewith.....	\$29,598.60
Losses paid during the year.....	8,203.46
Losses incurred during the year.....	6,598.55

AGENTS.

McKean & Andrews, S. Richardson, G. H. Aldrich & Son, A. J. Barrett, Crawford, Tolles & Co., F. W. Cheney,	Nashua. Claremont. Keene. Littleton. Dover. Newport.	D. M. White, A. Elliott & Co., C. M. DeRochmont, G. C. Gordon, C. H. Pitman,	Peterborough. Manchester. Portsmouth. Salem. Farmington.
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AMERICAN MANUFACTURERS' MUTUAL FIRE INSURANCE COMPANY.

[Organized February 25, 1887. Commenced business March 1, 1887.]

ALMON D. TOLLES, *President.*

OBADIAH MORRILL, *Secretary.*

Principal office, Concord.

I. ASSETS.

Loans on mortgages of real estate (first liens).....			\$5,265.00
Value of lands mortgaged.....		\$11,000.00	
Value of buildings thereon.....		8,750.00	
Insurance held as collateral		3,500.00	
<i>STOCKS.</i>			
3 shares American Trust Co.....	<i>Par Value.</i>	<i>Market Value.</i>	
	\$300.00	\$300.00	
			\$300.00
Cash in company's office.....			92.35
Cash deposited in banks:			
Union Guaranty Savings Bank.....		\$1,030.00	
National State Capital Bank.....		640.52	
Deposited with E. H. Rollins & Son, bankers		1,020.23	
			\$2,690.75
Interest due and accrued.....			90.04
Premiums in course of collection			594.76
Gross available assets.....			\$9,032.90
Assessable contingent premiums on outstanding risks, \$22,058.04.			

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$180.56	
reported, but not adjusted.....	500.00	
resisted, including interest and expenses	250.00	
	<hr/>	
Net amount of unpaid losses.....		\$930.56
Unearned premiums taken at 50 per cent of gross premiums		5,899.11
Commissions on premiums in course of collection.....		100.87
Salaries and incidental expenses.....		457.46
		<hr/>
Liabilities, except surplus....		\$7,388.00
Surplus.....		1,644.90
		<hr/>
Gross liabilities, including surplus.....		\$9,032.90
		<hr/>

III. INCOME.

Cash received for gross premiums.....	\$12,633.91	
Deduct re-insurance and return premiums.....	958.54	
	<hr/>	
Net cash premiums received during the year.....		\$11,675.37
Interest and dividends from all sources		401.78
		<hr/>
Gross cash income.....		\$12,077.15
Contingent premiums received during the year, \$23,706.42.		

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$5,415.56	
Commissions on premiums.....	2,246.68	
Salaries and fees of officers and employees.....	246.11	
State and local taxes.....	5.00	
Office and incidental expenses.....	382.69	
Interest accrued on securities purchased.....	73.06	
	<hr/>	
Gross cash expenditures.....		\$8,369.10
		<hr/>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$489,436.17	\$9,988.89	\$19,977.78
Risks written during the year....	634,486.21	12,633.91	23,706.42
	<hr/>	<hr/>	<hr/>
Total.....	\$1,123,922.38	\$22,622.80	\$43,684.20
Risks terminated during the year	518,052.62	10,813.08	21,626.16
	<hr/>	<hr/>	<hr/>
In force at end of the year..	\$605,869.76	\$11,809.72	\$22,058.04
Deduct amount re-insured.....	1,000.00	11.50	
	<hr/>	<hr/>	<hr/>
Amount in force Dec. 31, '88	\$604,869.76	\$11,798.22	\$22,058.04

Contingent premiums on outstanding risks, less assessments paid thereon.....	\$22,058.04
Losses incurred during the year.....	4,588.07
Cash received of other companies for insurance.....	454.09

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$530,869.03
Cash premiums received.....	10,552.52
Contingent premiums therewith.....	21,105.04
Losses paid during the year.....	4,964.08
Losses incurred during the year.....	4,136.59

AGENTS.

A. Elliott & Co.,	Manchester.	A. J. Barrett,	Littleton.
Crawford, Tolles & Co.,	{ Great Falls and Dover.	McKean & Andrews, G. H. Aldrich & Son,	Nashua. Keene.

CHESHIRE COUNTY MUTUAL FIRE INSURANCE
COMPANY.

[Incorporated, 1825. Commenced business, 1825.]

JOHN HENRY ELLIOT, *President.*WILLIAM H. ELLIOT, *Secretary.*

Principal office, Keene.

I. ASSETS.

Cash in company's office.....	\$145.04
Cash deposited in banks:	
Cheshire National Bank.....	\$2,010.28
Keene Guaranty Savings Bank.....	2,156.89
Keene Five-Cent Savings Bank.....	4,211.28
Cheshire Provident Institution.....	5,399.93
	<hr/>
	\$13,778.38
Interest due and accrued.....	67.50
Premiums in course of collection.....	3,605.87
	<hr/>
Gross available assets.....	\$17,596.79
Assessable contingent premiums on outstanding risks, \$24,262.22.	

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$855.50
Net amount of unpaid losses.....	\$855.50
Unearned premiums taken at 50 per cent of gross premiums	18,069.88
Due to other companies for re-insurance.....	12.75
Commissions on premiums in course of collection.....	540.51
Rents, taxes, salaries, and incidental expenses.....	1,363.47
Total liabilities, including re-insurance.....	\$20,842.11
Deduct gross available assets.....	17,596.79
Deficiency of available assets	\$3,245.32

III. INCOME.

Cash received for gross premiums.....	\$17,577.07
Deduct re-insurance and return premiums.....	585.42
Net cash premiums received during the year.....	\$16,991.65
Interest and dividends from all sources.....	411.00
Gross cash income.....	\$17,402.65
Contingent premiums received during the year, \$6,306.41.	

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$8,244.04
Commissions on premiums.....	2,550.66
Salaries and fees of officers and employees.....	1,200.00
Rents.....	75.00
Office and incidental expenses.....	425.58
Gross cash expenditures	\$12,495.28

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$3,293,744.98	\$35,582.62	\$30,994.89
Risks written during the year....	1,304,251.04	18,283.57	6,306.41
Total.....	\$4,597,996.02	\$53,866.19	\$37,301.30
Risks terminated during the year	1,468,276.00	17,713.68	13,039.08
In force at end of the year..	\$3,129,720.02	\$36,152.51	\$24,262.22
Deduct amount re-insured.....	3,000.00	30.00	
Amount in force Dec. 31, '88	\$3,126,720.02	\$36,122.51	\$24,262.22

Contingent premiums on outstanding risks, less assessments paid thereon.....	\$24,262.22
Losses incurred during the year.....	6,834.85
Cash received of other companies for insurance.....	612.37

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,248,459.04
Cash premiums received.....	17,400.68
Contingent premiums therewith.....	6,306.41
Losses paid during the year.....	8,244.04
Losses incurred during the year.....	6,834.85

AGENTS.

D. B. Aldrich,	Richmond.	Jackman & Lang,	Concord.
J. G. Bellows,	Walpole.	J. Q. Jones,	Marlow.
W. Bill, Jr.,	Westmoreland.	C. J. Kelsea,	Lisbon.
A. J. Blake,	Fitzwilliam.	Kidder & Whitney,	Milford.
E. Boyden,	Marlborough.	J. K. Lund,	Bradford.
W. Burleigh & Co.,	Franklin Falls.	Melcher & Prescott,	Laconia.
M. R. Buxton,	Nashua.	A. S. Parshley,	Rochester.
Dexter Chase,	Lancaster.	J. B. Pike,	Lebanon.
B. H. Corning,	Littleton.	F. W. Preston,	New Ipswich.
Crawford & Tolles,	Great Falls.	F. W. Putnam,	Charlestown.
George E. Dame,	Newport.	H. A. Redfield,	Dover.
J. N. Davis,	Acworth.	T. W. Saben,	Hinsdale.
F. Downing,	Swansey.	S. C. Sargent,	Grantham.
C. O. Eastman,	Claremont.	John Sise,	Portsmouth.
A. Elliott & Co.,	Manchester.	Aaron Smith,	Harrisville.
J. C. Farwell,	Chesterfield.	G. W. Stearns,	Rindge.
J. Fleeman,	Wilton.	T. Tufts,	Alstead.
E. M. Forbes,	Winchester?	B. K. Webber,	Hillsborough.
G. W. Gleason,	Dublin.	L. Wellington,	Keene.
G. W. Hamlin,	Claremont.	D. M. White,	Peterborough.
S. W. Hurd,	Washington.	C. H. Whitney,	Keene.

CONCORD MUTUAL FIRE INSURANCE COMPANY.

[Organized August 31, 1885. Commenced business October 17, 1885.]

SAMUEL C. EASTMAN, *President.*RUFUS P. STANIELS, *Secretary.*

Principal office, 78 North Main street, Concord.

I. ASSETS.

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
Pullman Palace Car Co.....	\$1,300.00	\$2,236.00	
St. Louis & San Francisco R. R.	1,000.00	1,100.00	
Northern R. R.....	1,000.00	1,400.00	
Pemigewasset Valley R. R.....	1,200.00	1,300.00	
Amoskeag Manufacturing Co....	2,000.00	3,800.00	
Atchison, Topeka & Santa Fe R. R	1,000.00	550.00	
<i>BONDS.</i>			
Atchison, Topeka & Santa Fe.....	250.00	200.00	
Total par and market values..	\$7,750.00	\$10,586.00	\$10,586.00
Cash in company's office.....			318.22
Cash deposited in banks:			
First National Bank.....		\$2,896.28	
New Hampshire Savings Bank.....		4,000.00	
Merrimack County Savings Bank.....		4,078.30	
			\$10,974.58
Interest due and accrued.....			100.00
Premiums in course of collection.....			1,410.49
Gross available assets.....			\$23,889.29
Assessable contingent premiums on outstanding risks, \$43,884.00			

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$90.28
reported, but not adjusted.....	600.00
resisted, including interest and expenses	1,300.00
Net amount of unpaid losses.....	\$1,990.28

Unearned premiums taken at 50 per cent of gross premiums	\$10,985.07
Return premiums due on cancelled policies.....	15.09
Commissions on premiums in course of collection.....	214.21
Liabilities, except surplus.....	\$13,204.65
Surplus.....	10,184.64
Gross liabilities, including surplus.....	\$23,389.29

III. INCOME.

Cash received for gross premiums	\$16,969.94
Deduct re-insurance and return premiums.....	520.65
Net cash premiums received during the year.....	\$16,449.29
Interest and dividends from all sources.....	742.68
Gross cash income	\$17,191.97
Contingent premiums received during the year, \$32,761.22.	

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$3,991.94
Commissions on premiums	2,467.74
Salaries and fees of officers and employees.....	900.00
Office and incidental expenses.....	277.61
Gross cash expenditures.....	\$7,637.29

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$1,471,027.39	\$20,978.59	\$41,924.44
Risks written during the year....	1,119,823.11	16,969.94	33,802.52
Total.....	\$2,590,850.50	\$37,948.53	\$75,726.96
Risks terminated during the year	991,816.39	15,978.40	31,842.96
Amount in force Dec. 31, '88	\$1,599,034.11	\$21,970.13	\$43,884.00
Contingent premiums on outstanding risks, less assessments paid thereon.....			\$43,884.00
Losses incurred during the year.....			2,275.97
Cash received of other companies for insurance.....			161.26

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,080,723.11
Cash premiums received.....	16,455.94
Contingent premiums therewith.....	32,774.52
Losses paid during the year.....	3,917.54
Losses incurred during the year.....	2,201.57

AGENTS.

G. H. Aldrich & Son,	Keene.	H. S. Osgood,	Claremont.
A. J. Barrett,	Littleton.	Charles F. Parker,	Wolfeborough.
S. A. Brown,	Exeter.	A. S. Parshley,	Rochester.
Burleigh & Adams,	Plymouth.	R. S. Perkins,	Tilton.
M. R. Buxton,	Nashua.	C. B. Perry,	Fitzwilliam.
Crawford, Tolles & Co.,	Great Falls.	E. P. Richardson,	Manchester.
George E. Dame & Co.,	Newport.	G. M. Stevens & Son,	Lancaster.
Dewey, Peck & Co.,	Lebanon.	Charles A. Tufts,	Dover.
L. H. Eastman,	Conway.	R. M. Wallace,	Milford.
N. A. Frost,	Hanover.	Williams Bros.,	Warren.
Leach & Barnard,	Franklin.	Ward P. Whitecher,	Lisbon.
Meicher & Prescott,	Laconia.	D. M. White,	Peterborough.
Timothy Murray,	Newmarket.		

EXETER MUTUAL FIRE INSURANCE COMPANY.

[Organized October 15, 1885. Commenced business October 15, 1885.]

JOHN TEMPLETON, *President.*

GEORGE W. WESTON, *Secretary.*

Principal office, Exeter.

I. ASSETS.

Cash in company's office.....	\$298.65
Cash deposited in banks:	
Union Five-Cent Savings Bank.....	\$14.85
International Trust Company, Boston.....	6.51
	<hr/>
	\$21.36
Premiums in course of collection.....	629.25
Desk, safe, and all other assets.....	200.00
	<hr/>
Gross available assets.....	\$1,149.26
Assessable contingent premiums on outstanding risks, \$11,897.92.	

II. LIABILITIES.

Unearned premiums taken at 50 per cent of gross premiums	\$2,974.48
Due or to become due for borrowed money and interest.....	300.00
Total liabilities, including re-insurance	<u>\$3,274.48</u>
Deduct gross available assets.....	1,149.26
Deficiency of available assets.....	<u><u>\$2,125.22</u></u>

III. INCOME.

Cash received for gross premiums.....	\$4,030.27
Deduct re-insurance and return premiums.....	455.79
Net cash premiums received during the year.....	<u>\$3,574.48</u>
Gross cash income.....	<u>\$3,574.48</u>
Contingent premiums received during the year, \$11,897.93.	

IV. EXPENDITURES.

Net amount paid for losses during the year....	\$4,354.02
Commissions on premiums	579.76
Salaries and fees of officers and employees.....	612.00
Rents.....	25.00
Office and incidental expenses.....	469.91
Paid for borrowed money and interest.....	564.00
Gross cash expenditures.....	<u><u>\$6,604.69</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$568,875.17	\$8,243.13	\$16,486.26
Risks written during the year....	278,874.00	4,030.27	8,060.54
Total.....	<u>\$847,749.17</u>	<u>\$12,273.40</u>	<u>\$24,546.80</u>
Risks terminated during the year	452,342.00	6,324.44	12,648.88
Amount in force Dec. 31, '88	<u>\$395,407.17</u>	<u>\$5,948.96</u>	<u>\$11,897.92</u>
Contingent premiums on outstanding risks, less assessments paid thereon.....			\$11,897.92
Losses incurred during the year.....			3,378.82

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$278,874.00
Cash premiums received.....	4,322.23
Contingent premiums therewith.....	8,644.46
Losses paid during the year.....	4,354.02
Losses incurred during the year.....	3,378.82

AGENTS.

William H. Belknap,	Exeter.	John G. Lane,	Manchester.
Bartlett & Shepard,	Derry.	Melcher & Prescott,	Laconia.
Burleigh & Adams,	Plymouth.	Morrill & Danforth,	Concord.
George F. Berry,	Pittsfield.	R. S. Perkins,	Tilton.
S. A. Brown,	Exeter.	R. P. Staniels & Co.,	Concord.
E. J. Copp & A. J. Tuck,	Nashua.	Williams Bros.,	Warren.
B. H. Corning,	Littleton.	George W. Wiggan,	Exeter.
D. B. Currier,	Hanover.	W. P. Whitecher,	Lisbon.
Arthur E. Cotton,	Northwood.	John T. Bartlett,	Raymond.
E. O. Eastman,	Claremont.	Dexter Chase,	Lancaster.
William C. Fox,	Wolfeborough.	Crawford, Tolles & Co.,	Dover.
Ephraim G. Flanders,	Brentwood.	R. N. Chamberlain,	Berlin Falls.
George C. Gordon,	Salem.	C. W. Cummings,	Warren.
Henry N. Gould,	Newton.	A. T. Lewis,	Fryeburg, Me.
Gage, Buxton & Co.,	Penacook.	George H. Tilden,	Keene.
Alanson C. Haines,	Newmarket.	John C. Paige,	Boston, Mass.
F. M. Hughes,	Ashland.	John C. Smith,	Haverhill, Mass.
Louis G. Hoyt,	Kingston.		

HOME MANUFACTURERS AND TRADERS' MUTUAL
FIRE INSURANCE COMPANY.

[Organized January 23, 1886. Incorporated August 24, 1887. Commenced business
February 1, 1886.]

FRANK A. McKEAN, *President.*OBADIAH MORRILL, *Secretary*

Principal office, Concord.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$11,946.00
Value of lands mortgaged.....	\$27,555.00
Value of buildings thereon.....	12,585.00
Insurance held as collateral.....	6,850.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
American Trust Co.....	\$500.00	\$500.00	
<i>BONDS.</i>			
New Hampshire Trust Co., deb..	2,000.00	2,000.00	
Total par and market values..	\$2,500.00	\$2,500.00	\$2,500.00
Cash in company's office.....			104.32
Cash deposited in banks:			
Loan & Trust Savings Bank.....		\$1,073.97	
Merrimack County Savings Bank.....		1,105.54	
Mechanics' National Bank.....		2,548.59	
			\$4,728.10
Interest due and accrued.....			311.90
Premiums in course of collection.....			672.70
Gross available assets.....			\$20,263.02
Assessable contingent premiums on outstanding risks, \$54,848.53.			

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$206.57	
reported, but not adjusted.....	2,000.00	
resisted, including interest and expenses	250.00	
Gross amount of claims for losses.....	\$2,456.57	
Deduct re-insurance thereon.....	500.00	
Net amount of unpaid losses.....		\$1,956.57
Unearned premiums taken at 50 per cent of gross premiums		13,551.09
Commissions on premiums in course of collection.....		101.23
Rents, taxes, salaries, and incidental expenses.....		1,072.89
Liabilities, except surplus.....		\$16,681.78
Surplus.....		3,581.24
Gross liabilities, including surplus.....		\$20,263.02

III. INCOME.

Cash received for gross premiums.....	\$27,658.52	
Deduct re-insurance and return premiums.....	1,663.52	
Net cash premiums received during the year.....		\$25,995.00
Interest and dividends from all sources.....		725.02
Gross cash income.....		\$26,720.02
Contingent premiums received during the year, \$53,043.92.		

IV. EXPENDITURES.

Gross amount paid for losses.....	\$11,938.91
Deduct amount received for re-insurance.....	309.02
Net amount paid for losses during the year.....	\$11,629.89
Commissions on premiums.....	4,802.11
Salaries and fees of officers and employees.....	530.74
State and local taxes.....	5.00
Office and incidental expenses.....	795.81
Interest accrued on securities purchased.....	114.86
Gross cash expenditures.....	\$17,878.41

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$1,347,613.20	\$24,648.15	\$51,274.66
Risks written during the year....	1,482,078.51	27,658.52	53,043.92
Total.....	\$2,829,691.71	\$52,306.67	\$104,318.58
Risks terminated during the year	1,278,186.70	24,735.00	49,470.00
In force at end of the year..	\$1,551,505.01	\$27,571.67	\$54,848.58
Deduct amount re-insured.....	33,892.63	469.50	
Amount in force Dec. 31, '88	\$1,517,612.38	\$27,102.17	\$54,848.58
Contingent premiums on outstanding risks, less assessments paid thereon			\$54,848.58
Losses incurred during the year			12,891.91
Cash received of other companies for insurance.....			484.86

NEW HAMPSHIRE BUSINESS..

Risks written during the year.....	\$1,330,201.58
Cash premiums received	24,662.30
Contingent premiums therewith.....	49,324.60
Losses paid during the year.....	11,450.62
Losses incurred during the year.....	12,403.62

AGENTS.

G. H. Aldrich,
Crawford, Tolles & Co.,
J. H. Dudley,
L. H. Eastman,
W. H. Belknap,
W. C. Fox,
G. C. Gordon,
S. S. Jewett,
McKean & Andrews,
G. B. Prescott,

Keene.
Great Falls.
Colebrook.
Conway.
Exeter.
Wolfeborough.
Salem.
Laconia.
Nashua.
Dover.

A. S. Parshley,
F. S. Pierce,
J. P. Morse,
F. H. Rollins,
C. H. Pitman,
H. S. Osgood,
G. M. Sanborn,
D. M. White,
G. M. Stevens & Son,
F. W. Cheney,

Rochester.
East Jaffrey.
Portsmouth.
Plymouth.
Farmington.
Claremont.
Manchester.
Peterborough.
Lancaster.
Newport.

INDIAN HEAD MUTUAL FIRE INSURANCE COMPANY.

[Organized November 22, 1885. Commenced business November 22, 1885.]

J. H. GOODALE, *President.*

MARK R. BUXTON, *Secretary.*

Principal office, Nashua.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$8,777.00
Value of lands mortgaged.....	\$21,040.00
Value of buildings thereon.....	5,990.00
Insurance held as collateral.....	2,550.00

SCHEDULE OF STOCKS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
New England Loan & Trust Co...	\$1,500.00	\$1,500.00	
National Loan & Trust Co.....	1,000.00	1,000.00	
Erie Telegraph & Telephone....	1,543.75	1,543.75	
Total par and market values..	\$4,043.75	\$4,043.75	\$4,043.75

COLLATERAL SECURITIES FOR LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
Capitol Fire Association Stock...	\$1,500.00	\$1,000.00	\$1,000.00
Cash in company's office.....			502.32
Cash deposited in banks:			
Mechanics Savings Bank.....		\$2,611.80	
City Savings Bank.....		1,243.00	
			\$3,854.80
Interest due and accrued.....			460.45
Premiums in course of collection.....			1,704.70
Gross available assets.....			\$20,343.02
Assessable contingent premiums on outstanding risks, \$25,853.34.			

II. LIABILITIES.

Unearned premiums taken at 50 per cent of gross premiums	\$6,463.33
Due to other companies for re-insurance.....	12.00

Return premiums due on cancelled policies.....	\$35.49
Commissions on premiums in course of collection.....	257.93
Liabilities, except surplus and Guaranty Fund.....	<u>\$6,768.75</u>
Surplus over Guaranty Fund.....	8,574.27
Guaranty Fund.....	<u>5,000.00</u>
Gross liabilities, including surplus and Guaranty Fund..	<u><u>\$20,343.02</u></u>

III. INCOME.

Cash received for gross premiums.....	\$11,109.30
Deduct re-insurance and return premiums.....	<u>705.44</u>
Net cash premiums received during the year.....	\$10,403.86
Interest received on mortgages.....	485.12
Interest and dividends from all other sources.....	<u>421.00</u>
Gross cash income.....	\$11,309.98
Contingent premiums received during the year, \$22,218.60.	

IV. EXPENDITURES.

Gross amount paid for losses.....	\$3,669.52
Deduct amount received for re-insurance.....	<u>536.92</u>
Net amount paid for losses during the year.....	\$3,132.60
Commissions on premiums.....	1,517.41
Salaries and fees of officers and employees.....	1,198.58
Rents.....	116.94
Office and incidental expenses.....	<u>439.00</u>
Gross cash expenditures.....	<u><u>\$6,404.53</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$911,851.00	\$10,952.50	\$21,905.00
Risks written during the year....	<u>764,893.00</u>	<u>11,109.30</u>	<u>22,218.60</u>
Total.....	\$1,676,744.00	\$22,061.80	\$44,123.60
Risks terminated during the year	<u>713,432.00</u>	<u>8,940.82</u>	<u>17,881.64</u>
In force at end of the year..	\$963,312.00	\$13,120.98	\$26,241.96
Deduct amount re-insured.....	<u>17,100.00</u>	<u>194.31</u>	<u>388.62</u>
Amount in force Dec. 31, '88	\$946,212.00	\$12,926.67	\$25,853.34

Contingent premiums on outstanding risks, less assessments paid thereon.....	\$25,853.34
Losses incurred during the year.....	3,638.20
Cash received of other companies for insurance.....	2,433.65

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$764,893.33
Cash premiums received.....	11,109.30
Contingent premiums therewith.....	22,218.60
Losses paid during the year.....	3,669.52
Losses incurred during the year	3,638.20

AGENTS.

Morrill & Danforth,	Concord.	A. S. Parshley,	Rochester.
D. M. White,	Peterborough.	H. A. Redfield,	Dover.
B. H. Corning,	Littleton.	Crawford, Tolles & Co.,	Farmington.
A. Elliott & Co.,	Manchester.	Z. C. Perkins,	Tilton.
Healey & Mason,	Keene.	W. H. Belknap,	Exeter.
C. O. Eastman,	Claremont.	L. H. Eastman,	Conway.
F. H. Rollins,	Plymouth.	F. W. Preston,	New Ipswich.
Dexter Chase,	Lancaster.	Melcher & Prescott,	Laconia.
Dewey, Peck & Co.,	Lebanon.		

MANUFACTURERS AND MERCHANTS' MUTUAL
INSURANCE COMPANY.

[Organized December 29, 1885. Incorporated September 2, 1887. Commenced business January 4, 1886.]

EDWARD G. LEACH, *President.*

LYMAN JACKMAN, *Secretary.*

Principal office, 39 North Main street, Concord.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$9,250.00
Value of lands mortgaged.....	\$14,780.00
Value of buildings thereon.....	9,305.00
Insurance held as collateral.....	4,500.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
No'w'n Guar'ty Loan Co., Minn.	\$1,000.00	\$1,000.00	
Fire Underwriters' Association..	100.00	100.00	
<i>BONDS.</i>			
New Hampshire Trust Co., deb.....	5,000.00	5,000.00	
Neb. Loan & Trust Co., Hastings...	3,000.00	3,000.00	
Kan. Investment Co., Topeka	3,000.00	3,000.00	
Davidson Inv't Co., Wichita, Kan.	4,000.00	4,000.00	
Minneapolis Deb. Loan Co.....	2,000.00	2,000.00	
Iowa Loan & T. Co., Des Moines...	3,000.00	3,000.00	
Rochester Loan & Banking Co.	2,000.00	2,000.00	
Xenia Water Co., Ohio	2,000.00	2,000.00	
Total par and market values	\$25,100.00	\$25,100.00	\$25,100.00
Cash in company's office.....			2,127.84
Cash deposited in banks:			
Loan & Trust Savings Bank.....		\$7,979.79	
National State Capital.....		2,116.29	
			\$10,096.08
Interest due and acerued.....			740.95
Premiums in course of collection.....			3,808.88
Loans on personal security.....			2,000.00
Gross available assets.....			\$53,123.75
Assessable contingent premiums on outstanding risks, §83,297.28.			

II. LIABILITIES.

Losses reported, but not adjusted.....	\$2,289.84	
resisted, including interest and expenses	2,850.00	
Net amount of unpaid losses.....		\$5,139.84
Unearned premiums taken at 50 per cent of gross premiums		26,317.93
Commissions on premiums in course of collection.....		571.33
Liabilities, except surplus.....		\$32,029.10
Surplus.....		21,094.65
Gross liabilities, including surplus.....		\$53,123.75

III. INCOME.

Cash received for gross premiums.....	\$53,852.20	
Deduct re-insurance and return premiums.....	3,592.60	
Net cash premiums received during the year.....		\$50,259.60
Interest received on mortgages.....		497.00
Interest and dividends from all other sources.....		1,508.79
Gross cash income.....		\$52,265.39
Contingent premiums received during the year, \$82,065.08.		

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$18,225.14
Commissions on premiums.....	8,053.50
Salaries and fees of officers and employees.....	1,975.08
Office and incidental expenses.....	1,866.10
Gross cash expenditures.....	\$30,119.82

GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$2,337,102.61	\$41,262.00	\$82,524.00
Risks written during the year ...	2,948,161.15	53,852.20	73,676.34
Total.....	\$5,285,263.76	\$95,114.20	\$156,200.34
Risks terminated during the year	2,197,378.88	41,606.00	72,903.06
In force at end of the year..	\$3,087,884.88	\$53,508.20	\$83,297.28
Deduct amount re-insured.....	44,050.00	872.34	
Amount in force Dec. 31, '88	\$3,043,834.88	\$52,635.86	\$83,297.28
Contingent premiums on outstanding risks, less assessments paid thereon.....			\$83,297.28
Losses incurred during the year.....			19,694.34
Cash received of other companies for insurance.....			4,935.82

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$2,100,100.53
Cash premiums received.....	36,838.17
Contingent premiums therewith.....	73,676.34
Losses paid during the year.....	10,231.79
Losses incurred during the year.....	10,264.29

AGENTS.

R. N. Chamberlin, Dearborn & Chase, Frank D. Currier, Jackman & Lang, J. H. Ballard, L. H. Eastman, C. O. Eastman, J. H. Dudley, Fred R. Felch, H. A. Redfield, F. S. Pierce, G. W. Wiggin, Leach & Barnard, Crawford, Tolles & Co., S. W. Holman, G. H. Aldrich & Son, Melcher & Prescott, G. M. Stevens & Son,	Berlin Falls. Bristol. Canaan. Concord. Concord. Conway. Claremont. Colebrook. Derry Depot. Dover. East Jaffrey. Exeter. Franklin. Great Falls. Hillsboro' Br. Keene. Laconia. Lancaster.	Dewey, Peck & Co., W. P. Whiteher, B. H. Corning, C. M. Edgerly, S. W. Rollins, W. M. Knowlton, E. J. Copp & A. J. Tuck, Timothy Murray, Frank G. Clarke, Burleigh & Adams, John Pender, J. F. Smith, C. F. Parker, George W. Stone, Oscar Foss, C. B. Perry, F. W. Cheney, Chester Abbott,	Lebanon. Lisbon. Littleton. Manchester. Meredith. Milford. Nashua. Newmarket. Peterborough. Plymouth. Portsmouth. Salem. Wolfeborough. Andover. C. Barnstead. Fitzwilliam Dep. Newport. Woodsville.
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PHENIX MUTUAL FIRE INSURANCE COMPANY.

[Organized August 3, 1886. Commenced business September 1, 1886.]

LUTHER S. MORRILL, *President*.LYMAN JACKMAN, *Secretary*.

Principal office, 39 North Main street, Concord.

I. ASSETS.

SCHEDULE OF STOCKS AND BONDS.

STOCKS.	Par Value.	Market Value.	
Chicago, Burlington & Quincy R. R.	\$1,000.00	\$1,100.00	
Northwestern Guaranty Loan Co..	500.00	500.00	
BONDS.			
Davidson Investment Co., deb.....	1,000.00	1,000.00	
Minneapolis Debenture Loan Co..	1,000.00	1,000.00	
Johnson Loan & Trust Co., deb...	1,500.00	1,500.00	
New Hampshire Trust Co., deb....	1,500.00	1,500.00	
Total par and market values..	\$6,500.00	\$6,600.00	\$6,600.00

Cash in company's office.....	\$289.50	
in hands of treasurer.....	1.17	
	<hr/>	\$290.67
Cash deposited in banks :		
First National Bank, Concord.....	\$1,430.44	
New Hampshire Savings	555.38	
Union Guaranty Savings.....	1,065.00	
	<hr/>	\$3,050.82
Interest due and accrued		145.19
Premiums in course of collection		1,980.83
Loans on personal securities.....		600.00
		<hr/>
Gross available assets.....		\$12,667.51
Assessable contingent premiums on outstanding risks, \$12,075.82.		

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$220.00	
reported, but not adjusted.....	500.00	
	<hr/>	
Net amount of unpaid losses.....		\$720.00
Unearned premiums taken at 50 per cent of gross premiums		10,835.66
Commissions on premiums in course of collection.....		297.12
		<hr/>
Liabilities, except surplus		\$11,852.78
Surplus		814.73
		<hr/>
Gross liabilities, including surplus		\$12,667.51
		<hr/>

III. INCOME.

Cash received for gross premiums.....	\$23,741.68	
Deduct re-insurance and return premiums	1,653.83	
	<hr/>	
Net cash premiums received during the year.....		\$22,087.85
Interest and dividends from all sources.....		199.19
		<hr/>
Gross cash income.....		\$22,287.04
Contingent premiums received during the year, \$21,843.94.		

IV. EXPENDITURES.

Net amount paid for losses during the year	\$7,925.79
Commissions on premiums	3,820.05
Salaries and fees of officers and employees.....	300.00

Rents	\$50.00
Office and incidental expenses.....	592.21
Gross cash expenditures.....	<u>\$12,688.05</u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888 ..	\$544,371.18	\$9,492.38	\$9,492.38
Risks written during the year...	1,234,716.53	23,741.68	21,843.94
Total	<u>\$1,779,087.71</u>	<u>\$33,234.06</u>	<u>\$31,336.32</u>
Risks terminated during the year	528,255.19	9,818.11	18,680.66
In force at end of the year..	<u>\$1,250,832.52</u>	<u>\$23,415.95</u>	<u>\$12,655.66</u>
Deduct amount re-insured	91,237.00	1,744.63	579.84
Amount in force Dec. 31, '88	<u>\$1,159,595.52</u>	<u>\$21,671.32</u>	<u>\$12,075.82</u>
Contingent premiums on outstanding risks, less assessments paid thereon.....			\$12,075.82
Losses incurred during the year.....			8,645.97
Cash received for insurance of other companies.....			3,559.83

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$636,520.16
Cash premiums received.....	10,921.97
Contingent premiums therewith.....	21,843.94
Losses paid during the year.....	3,058.31
Losses incurred during the year.....	3,835.61

AGENTS.

Melcher & Prescott, Caleb Richardson, Healey & Mason, Crawford, Tolles & Co., Crawford, Tolles & Co., B. H. Corning,	Laconia. Nashua. Keene. Great Falls. Dover. Littleton.	Dexter Chase, Alfred R. Evans, T. F. Johnson, R. B. Hatch, John G. Lane, Fred W. Cheney,	Lancaster. Gorham. Colebrook. Peterborough. Manchester. Newport.
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STATE MUTUAL FIRE INSURANCE COMPANY.

[Organized October 17, 1885. Commenced business October 23, 1885.]

FRANK A. MCKEAN, *President.*OBADIAH MORRILL, *Secretary.*

Principal office, Concord.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$9,075.00
Value of lands mortgaged	\$25,508.00
Value of buildings thereon.....	6,975.00
Insurance held as collateral.....	3,400.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
Indian Head National Bank.....	\$500.00	\$650.00	
<i>BONDS.</i>			
Equitable Mortgage Co., 7s.	500.00	511.67	
Total par and market values..	\$1,000.00	\$1,161.67	\$1,161.67

COLLATERAL SECURITIES FOR LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
10 shs. Granite State Fire Ins. Co.	\$1,000.00	\$1,000.00	\$1,000.00
Cash in company's office.....			30.29
Cash deposited in banks:			
First National Bank, Concord.....		\$2,420.00	
Union Guaranty Savings Bank.....		2,043.34	
			\$4,463.34
Interest due and accrued.....			116.92
Premiums in course of collection.....			568.35
Gross available assets.....			\$16,415.57
Assessable contingent premiums on outstanding risks, \$30,924.38.			

II. LIABILITIES.

Unearned premiums taken at 50 per cent of gross premiums	\$7,664.28
Due or to become due for borrowed money and interest	3,045.00
Commissions on premiums in course of collection.....	93.27
Salaries and incidental expenses	379.84
Liabilities, except surplus and Guaranty Fund	\$11,182.39
Surplus above Guaranty Fund.....	2,233.18
Guaranty Fund.....	3,000.00
Gross liabilities, including surplus and Guaranty Fund..	\$16,415.57

III. INCOME.

Cash received for gross premiums.....	\$10,365.43
Deduct re-insurance and return premiums.....	307.36
Net cash premiums received during the year	\$10,058.07
Interest and dividends from all sources.....	798.36
Gross cash income.....	\$10,856.43
Contingent premiums received during the year, \$20,296.86.	

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$8,239.68
Commissions on premiums.....	1,854.37
Salaries and fees of officers and employees.....	227.47
Profits or surplus on terminated policies.....	20.21
State and local taxes	5.00
Office and incidental expenses.....	360.43
Dividends on Guaranty Fund (10 per cent).....	300.00
Paid for interest accrued on securities purchased.....	16.58
Gross cash expenditures.. ..	\$11,023.74

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Cash Premiums.</i>	<i>Contingent Premiums.</i>
Risks in force January 1, 1888...	\$531,514.34	\$12,951.10	\$26,293.20
Risks written during the year...	768,799.12	10,365.43	20,296.86
Total	\$1,300,313.46	\$23,316.53	\$46,590.06
Risks terminated during the year	176,214.29	7,832.84	15,665.68
In force at the end of year	\$1,124,099.17	\$15,483.69	\$30,924.38
Deduct amount re-insured.....	12,350.00	155.13	
Amount in force Dec. 31, '88	\$1,111,749.17	\$15,328.56	\$30,924.38
Contingent premiums on outstanding risks, less assessments paid thereon.....			\$30,924.38
Losses incurred during the year.....			7,284.88
Cash received of other companies for insurance.....			126.41

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$749,199.12
Cash premiums received	10,004.43
Contingent premiums therewith.....	20,008.86
Losses paid during the year.....	8,239.68
Losses incurred during the year.....	7,284.88

AGENTS.

G. H. Aldrich & Son, Keene.
 Burleigh & Adams, Plymouth.
 Crawford, Tolles & Co., Great Falls.
 Crawford, Tolles & Co., Dover.
 S. S. Jewett, Laconia.
 Morrill & Danforth, Concord.
 H. S. Osgood, Claremont.

R. M. Wallace, Milford.
 McKean & Andrews, Nashua.
 A. S. Parshley, Rochester.
 John Pender, Portsmouth.
 B. C. Perkins, Tilton.
 G. M. Sanborn, Manchester.
 G. W. Wiggin, Exeter.

AGGREGATE.

Whole amount of Guaranty Fund.....	\$8,000.00
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ASSETS.

Gross assets.....	\$187,158.24
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LIABILITIES.

Gross liabilities.....	\$133,455.70
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INCOME.

Cash received during the year for premiums (net)....	\$183,462.27
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for interest and dividends.....	6,643.31
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Gross cash income.....	\$190,105.58
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EXPENDITURES.

Cash paid during the year for losses.....	\$79,362.12
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for commissions on premiums.....	30,901.12
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for salaries of officers and employees.....	7,402.51
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for incidental expenses.....	7,549.17
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Gross cash expenditures.....	\$125,214.92
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GENERAL ITEMS.

Risks written during the year.....	\$11,432,506.30
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Policy stipulations thereon.....	295,322.83
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Risks terminated during the year.....	9,101,543.89
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Risks outstanding at end of the year.....	14,418,773.34
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Policy stipulations thereon.....	341,043.64
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Losses incurred during the year.....	75,831.64
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NEW HAMPSHIRE
JOINT-STOCK
FIRE INSURANCE COMPANIES.

ABSTRACTS OF ANNUAL REPORTS, WITH DETAILED STATEMENTS
OF ASSETS AND LIABILITIES, AND NAMES OF AGENTS,
FOR THE YEAR ENDING DECEMBER 31, 1888.

AMOSKEAG FIRE INSURANCE COMPANY.

[Organized May 4, 1886.

Commenced business June 22, 1886.]

ALPHEUS GAY, *President*.JAMES E. DODGE, *Secretary*.

Principal office, Manchester.

CASH CAPITAL, \$50,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$55,052.28
Interest due and accrued thereon.....	482.78

Value of lands and buildings mortgaged..... \$114,925.00

Insurance held as collateral..... 15,270.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
Winchester, N. H., National Bank	\$1,000.00	\$1,100.00	
<i>BONDS.</i>			
N. H. Trust Co., debenture.....	10,000.00	10,000.00	
Oregon Short Line Railway Co. . . .	1,000.00	1,010.00	
N. Y. & N. E. R. R., 2d mortgage.	1,000.00	1,060.00	
Rapid City, Dakota	1,000.00	1,100.00	
Wahpeton Water Co.....	1,000.00	1,000.00	
St. Cloud Gas & Electric Co.....	3,000.00	3,150.00	
Barnes Co., Dakota, orders.....	616.15	616.15	
Total par and market values..	\$18,616.15	\$19,036.15	\$19,036.15
Cash in the company's office.....			5,920.83
Cash deposited in New Hampshire Trust Co.....			5,000.00
Interest due and accrued.....			89.29
Gross premiums in course of collection.....			1,984.53
Loans on personal security.....			3,000.00
Gross assets.....			\$90,565.86

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$5,520.00	
reported, but not adjusted.....	900.00	
resisted, including interest and expenses	1,000.00	
	<hr/>	
Net amount of unpaid losses.....		\$7,420.00
Unearned premiums taken at 50 per cent of gross premiums		24,169.70
Due and accrued for salaries, rent, and incidental expenses..		391.66
Commissions and brokerage.....		280.00
		<hr/>
Gross liabilities, except capital and surplus.....		\$32,261.36
Paid-up capital.....	\$50,000.00	
Surplus over capital.....	8,304.50	
	<hr/>	
Surplus as regards policy holders.....		\$58,304.50
		<hr/>
Total liabilities, including capital and surplus.....		<u>\$90,565.86</u>

III. INCOME.

Cash received for gross premiums	\$37,890.85	
Deduct re-insurance and return premiums.....	2,393.09	
	<hr/>	
Net cash received for premiums.....		\$35,497.76
Received for interest on mortgages....		2,660.00
Interest and dividends from all other sources.....		2,842.06
Income from all other sources, viz.:		
Rents, \$60.00; commissions, \$15.38.....		75.38
		<hr/>
Gross cash income.....		\$41,075.20

IV. EXPENDITURES.

Gross amount paid for losses.....	\$15,907.33	
Deduct salvage and re-insurance.....	44.40	
	<hr/>	
Net amount paid for losses during the year.....		\$15,862.93
Commissions and brokerage.....		5,929.90
Salaries and fees of officers and employees.....		2,282.51
State and local taxes.....		500.00
Rents.....		200.00
Office and incidental expenses.....		425.64
All other payments and expenditures.....		638.93
		<hr/>
Gross cash expenditures.....		<u>\$25,839.91</u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$2,776,006.64	\$34,660.67
Risks written during the year.....	3,023,769.67	38,201.13
Total.....	\$5,799,776.31	\$72,861.80
Risks terminated during the year.....	1,728,907.29	23,875.41
In force at end of the year.....	\$4,070,869.02	\$48,986.39
Deduct amount re-insured.....	57,723.83	647.00
Net amount in force December 31, 1888..	\$4,013,145.19	\$48,339.39
Premiums received from organization to date....		\$89,412.84
Losses paid from organization to date.....		34,816.00
Losses incurred during the year 1888		22,114.67
Company's stock owned by the directors, at par value		17,600.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$2,551,528.58
Gross premiums received thereon.....	33,046.71
Losses paid during the year.....	12,856.16
Losses incurred during the year.....	17,769.86

AGENTS.

Morrill & Danforth,	Concord.	William O. Folsom,	Henniker.
Charles A. Hazlett,	Portsmouth.	Z. C. Perkins,	Tilton.
George B. Prescott,	Dover.	Charles F. Parker,	Wolfeborough.
A. S. Parshley,	Rochester.	Amos J. Blake,	Fitzwilliam.
Melcher & Prescott,	Laconia.	Ward P. Whiteher,	Lisbon.
George H. Tilden,	Keene.	James E. French,	Moultonboro'.
Robert M. Wallace,	Milford.	M. R. Buxton,	Nashua.
Alfred R. Evans,	Gorham.	Crawford, Tolles & Co.,	Farmington.
Dexter Chase,	Lancaster.	Samuel W. Holman,	Hillsboro' Br.
T. F. Johnson,	Colebrook.	George C. Gordon,	Salem.
Chester Abbott,	Woodsville.	N. A. Frost,	Hanover.
S. W. Rolins,	Meredith.	George W. Gleason,	Dublin.
George W. Cummings,	Francestown.	Ezra S. Stearns,	East Rindge.
Herbert S. Osgood,	Claremont.	John T. Bartlett,	Raymond.
George E. Dame & Co.,	Newport.	George G. Davis,	Marlborough.
Henry A. Abbott,	Winchester.	B. H. Corning,	Littleton.
Williams Bros.,	Warren.	John W. Center,	Litchfield.
Leach & Barnard,	Franklin.	R. E. Hatch,	Peterborough.
Bartlett & Shepard,	Derry.	William Weber,	Manchester.
Thomas W. Saben,	Hinsdale.	F. S. Pierce,	East Jaffrey.
Dewey, Peck & Co.,	Lebanon.	George L. Dearborn,	Newmarket.
George F. Berry,	Pittsfield.	Edward L. Kimball,	Manchester.
Eigin A. Jones,	Marlow.	Weston & Shute,	Exeter.
A. P. Davis,	Warner.	M. M. Wiggins,	Springfield.
Dearborn & Chase,	Bristol.	O'Connor & Sheehan,	Manchester.
Frank H. Rollins,	Plymouth.		

CAPITAL FIRE INSURANCE COMPANY.

[Organized March 10, 1886. Commenced business March 19, 1886.]

A. B. THOMPSON, *President*.LYMAN JACKMAN, *Secretary*.

Principal office, 39 North Main street, Concord.

CASH CAPITAL, \$50,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens)	\$17,300.00
Interest due and accrued thereon	240.93
Value of lands mortgaged	\$53,200.00
Value of buildings thereon	17,650.00
Insurance held as collateral	8,500.00

SCHEDULE OF STOCKS AND BONDS.

STOCKS.	Par Value.	Market Value.
Atch., Topeka & Santa Fe R. R. Co.	\$1,500.00	\$873.75
Northwestern Guaranty Loan Co...	1,000.00	1,000.00
BONDS.		
Union Pacific R. R. Co.....	7,000.00	8,190.00
Iowa Loan & Trust Co., deb.....	5,000.00	5,000.00
Central Loan & Land Co., deb.....	5,000.00	5,000.00
Winfield Water Co., Kansas.....	3,000.00	3,000.00
Wichita Water Co., Kansas	2,000.00	2,000.00
Johnson Loan & Trust Co., deb....	1,000.00	1,000.00
N. H. Trust Co., deb.....	5,500.00	5,500.00
Muscatine Mortgage Trust Co., deb.	5,000.00	5,000.00
City Water Co., Chattanooga, Tenn.	5,000.00	5,000.00
Kansas Pacific R. R. Co.....	1,000.00	1,115.00
School Dist. No. 1, Garfield Co., Col.	1,000.00	1,035.00
Xenia Water Co., Ohio.....	3,000.00	3,000.00
City of Kingman (Kan.) Water & Power Co.....	1,000.00	1,000.00
Nebraska Loan & Trust Co., deb...	1,000.00	1,000.00
Crippen, Lawrence & Co., deb.....	1,500.00	1,500.00
Davidson Investment Co., deb.....	2,000.00	2,000.00
Total par and market values...	\$51,500.00	\$52,213.75
		\$52,213.75

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
Kings County Elevated Railway Co	\$7,000.00	\$5,000.00	
Amoskeag Manufacturing Co.....	1,890.00	1,500.00	
Concord Manufacturing Co.....	2,500.00	2,000.00	
Total amounts	<u>\$11,390.00</u>	<u>\$8,500.00</u>	\$8,500.00
Cash in the company's office.....			665.40
Cash deposited in banks:			
Loan & Trust Savings Bank.....		\$4,571.53	
Merrimack County Savings Bank.....		909.67	
New Hampshire Savings Bank.....		4,431.38	
National State Capital Bank, Concord.....		<u>2,458.17</u>	
			\$12,370.75
Interest due and accrued.....			1,218.05
Gross premiums in course of collection.....			<u>3,136.88</u>
Gross assets.....			<u>\$95,645.76</u>

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$1,832.30	
resisted, including interest and expenses	<u>750.00</u>	
Gross amount of claims for losses.....	\$2,582.30	
Deduct re-insurance thereon.....	<u>361.15</u>	
Net amount of unpaid losses.....		\$2,221.15
Unearned premiums taken at 50 per cent of gross premiums		31,395.62
Due and accrued for salaries, rent, and incidental expenses..		400.00
Commissions and brokerage.....		<u>470.53</u>
Gross liabilities, except capital and surplus.....		\$34,487.30
Paid-up capital...	\$50,000.00	
Surplus over capital...	<u>11,158.46</u>	
Surplus as regards policy holders.....		<u>\$61,158.46</u>
Total liabilities, including capital and surplus.....		<u>\$95,645.76</u>

III. INCOME.

Cash received for gross premiums.....	\$57,344.50	
Deduct re-insurance and return premiums.....	<u>11,621.28</u>	
Net cash received for premiums.....		\$45,723.22

Received for interest on mortgages.....		\$1,099.78
Interest and dividends from all other sources.....		3,465.45
Income from all other sources, viz.:		
Commissions on securities purchased.....	\$30.00	
Profit on securities sold.....	85.00	
		<u>\$115.00</u>
Gross cash income.....		<u>\$50,403.45</u>

IV. EXPENDITURES.

Gross amount paid for losses.....	\$22,964.43	
Deduct salvage and re-insurance.....	4,170.72	
		<u>\$18,793.71</u>
Net amount paid for losses during the year.....		\$18,793.71
Dividends paid stockholders.....		2,500.00
Commissions and brokerage.....		8,869.84
Salaries and fees of officers and employees.....		1,408.42
State and local taxes.....		500.00
Office and incidental expenses.....		1,809.43
Accrued interest on securities purchased.....		151.64
		<u>\$34,033.04</u>
Gross cash expenditures.....		<u>\$34,033.04</u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$3,485,211.19	\$41,304.42
Risks written during the year.....	4,044,598.73	58,687.25
		<u>\$102,991.67</u>
Total	\$7,529,809.92	\$102,991.67
Risks terminated during the year....	2,053,078.57	30,191.78
		<u>\$72,799.89</u>
In force at end of the year.....	\$5,476,731.35	\$72,799.89
Deduct amount re-insured	784,498.75	10,008.64
		<u>\$62,791.25</u>
Net amount in force Dec. 31, 1888.....	\$4,692,232.60	\$62,791.25
Premiums received from organization to date.....		\$142,847.72
Losses paid from organization to date.....		47,033.33
Losses incurred during the year 1888.....		20,518.61
Cash dividends declared since commencing business.....		3,750.00
Company's stock owned by the directors, at par value.....		29,000.00
Dividends declared during the year 1888 (5 per cent).....		2,500.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$3,469,868.72
Gross premiums received thereon.....	46,515.70
Losses paid during the year.....	13,948.60
Losses incurred during the year.....	12,612.65

AGENTS.

Dearborn & Chase,	Bristol.	E. S. Leonard,	Walpole.
H. W. Bond,	Charlestown.	B. H. Corning,	Littleton.
J. H. Dudley,	Colebrook.	H. H. Holt,	Lyme.
Jackman & Lang,	Concord.	W. G. Everett,	Manchester.
J. H. Ballard,	Concord.	W. M. Knowlton,	Milford.
C. O. Eastman,	Claremont.	E. J. Copp & A. J. Tuck,	Nashua.
L. H. Eastman,	Conway.	Timothy Murray,	Newmarket.
Fred R. Felch,	Derry Depot.	Edmund P. Fox,	New Boston.
Crawford, Tolles & Co.,	Dover.	F. W. Cheney,	Newport.
F. S. Pierce,	East Jaffrey.	R. B. Hatch,	Peterborough.
G. W. Wiggin,	Exeter.	J. P. Huckins,	Plymouth.
Leach & Barnard,	Franklin.	Samuel Dodge,	Portsmouth.
Alfred R. Evans,	Gorham.	R. S. Perkins,	Tilton.
N. A. Frost,	Hanover.	Armington & Aldrich,	Whitefield.
George H. Tilden,	Keene.	J. Fleeman,	Wilton.
Melcher & Prescott,	Laconia.	H. W. Brigham,	Winchester.
Dexter Chase,	Lancaster.	C. F. Parker,	Wolfeborough.
Dewey, Peck & Co.,	Lebanon.	Chester Abbott,	Woodsville.
Ward P. Whiteber,	Lisbon.	George W. Stone,	Andover.
J. A. Fuller,	Contoocook.	Oscar Foss,	C. Barnstead.
B. F. Heath,	Warner.	Stephen Batcheller,	Fitzwilliam.
J. B. Haselton,	Suncook.		

CAPITOL FIRE ASSOCIATION.

[Incorporated August 13, 1885. Commenced business February 22, 1886.]

FRANK A. MCKEAN, *President.*

MARK R. BUXTON, *Secretary.*

Principal office, Nashua.

CASH CAPITAL, \$50,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$23,275.00
Interest accrued thereon.....	520.14
Value of lands and buildings mortgaged.....	\$79,125.00
Insurance held as collateral.....	8,125.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Muscatine Mfg. & Trust Co.....	\$6,000.00	\$7,500.00
Guaranty Loan & Trust Co.....	2,000.00	2,000 00
Boston, Concord & Montreal R. R.	2,500.00	2,625.00
Second National Bank, Nashua....	1,000.00	1,180.00
Nashua Manufacturing Co.....	5,000.00	5,750.00
Jackson Manufacturing Co., Nashua	1,000.00	1,005.00
Union Loan & Trust Co.	2,000.00	2,200.00
Indian Head Nat'l Bank, Nashua..	1,200.00	1,950.00
People's Fire Ins. Co., Manchester	100.00	100.00
Amoskeag Fire Ins. Co., Manchester	200.00	200.00
State Mutual Fire Ins. Co., Concord	200.00	200.00
<i>BONDS.</i>		
Richmond Co., Ga., factory.....	2,000.00	2,000.00
N. H. Trust Co., debenture.....	10,000.00	10,000.00
County, Santa Fe	3,000.00	2,760.00
Kansas Investment Co.....	2,500.00	2,500.00
Total par and market values..	\$38,700.00	\$41,970.00
		\$41,970.00

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>
Capitol Fire Association, Nashua ..	\$1,500.00	1,450.00
National Bank, Denton, Texas....	5,500.00	5,000.00
Telegraph Publishing Co., Nashua.	1,000.00	1,000.00
Union Loan & Trust Co.....	2,750.00	2,500.00
Total amounts.....	\$10,750.00	\$9,950.00
		\$9,950.00
Personal loans indorsed		5,500.00
Cash in company's office.....		1,461.53
Cash deposited in City Savings Bank		2,249.10
Interest due and accrued.....		1,576.93
Gross premiums in course of collection.....		5,308.44
Gross assets.....		\$91,811.14

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$91.66
reported, but not adjusted.....	500.00
Net amount of unpaid losses.....	\$591.66

Unearned premiums taken at 50 per cent of gross premiums..	\$27,067.82
Commissions and brokerage.....	796.26
Gross liabilities, except capital and surplus.....	\$28,455.74
Paid-up capital.....	\$50,000.00
Surplus over capital.....	13,355.40
Surplus as regards policy holders.....	\$63,355.40
Total liabilities, including capital and surplus.....	\$91,811.14

III. INCOME.

Cash received for gross premiums.....	\$36,993.49
Deduct re-insurance and return premiums.....	4,215.69
Net cash received for premiums.....	\$32,777.80
Received for interest on mortgages.....	1,513.48
Interest and dividends from all other sources.....	4,521.74
Gross cash income	\$38,813.02

IV. EXPENDITURES.

Gross amount paid for losses during the year.	\$15,522.59
Dividends paid stockholders.....	2,000.00
Commissions and brokerage.....	5,415.22
Salaries and fees of officers and employees.....	1,354.72
State and local taxes.....	500.00
Office and incidental expenses.....	1,138.93
Gross cash expenditures.....	\$25,931.46

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$3,531,062.00	\$42,712.38
Risks written during the year.....	3,036,305.00	38,001.93
Total	\$6,567,367.00	\$80,714.31
Risks terminated during the year....	1,905,512.00	23,656.67
In force at the end of the year.....	\$4,661,855.00	\$57,057.64
Deduct amount re-insured	240,018.00	2,921.99
Net amount in force December 31, 1888..	\$4,421,837.00	\$54,135.65

Premiums received from organization to date.....	\$103,317.04
Losses paid from organization to date.....	39,844.06
Losses incurred during the year 1888.....	14,641.80
Cash dividends declared since commencing business.....	7,000.00
Company's stock owned by the directors, at par value.....	26,400.00
Dividends declared during the year 1888 (4 per cent).....	2,000.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$3,036,305.00
Gross premiums received thereon.....	38,001.93
Losses paid during the year.....	15,522.59
Losses incurred during the year.....	14,641.80

AGENTS.

A. Elliott & Co,	Manchester.	Healey & Mason,	Keene.
John Pender,	Portsmouth.	Melcher & Prescott,	Laconia.
H. S. Osgood,	Claremont.	D. M. White,	Peterborough.
H. A. Redfield,	Dover.	J. H. Dudley,	Colebrook.
A. S. Parshley,	Rochester.	Dexter Chase,	Lancaster.
F. H. Rollins,	Plymouth.	S. D. Downes,	Francestown.
Z. C. Perkins,	Tilton.	B. H. Corning,	Littleton.
W. H. Belknap,	Exeter.	Geo. E. Dame & Co.,	Newport.
W. P. Whitecar,	Lisbon.	R. M. Wallace,	Milford.
W. D. Knapp,	Great Falls.	H. Abbott,	Winchester.
S. W. Holman,	Hillsborough Br.	G. R. Stone,	Franklin.
Dewey, Peck & Co.,	Lebanon.	C. F. Parker,	Wolfeborough.
Gage, Buxton & Co.,	Penacook.	C. W. Neal,	Meredith.
G. S. Butler,	Pelham.	F. W. Preston,	New Ipswich.
F. R. Felch,	Derry Depot.	E. J. Temple,	Hinsdale.
G. F. Berry,	Pittsfield.	N. A. Frost,	Hanover.
W. B. Rotch,	Amherst.	C. R. Jameson,	Antrim.
Dearborn & Chase,	Bristol.	Chester Abbott,	Woodsville.
H. J. Jones,	Alton.	W. F. Westgate,	Haverhill.
L. H. Eastman,	Conway.	F. D. Currier,	East Canaan.
L. S. Hayes,	Walpole.	T. G. Stevens,	Rumney.
Alfred R. Evans,	Gorham.	F. S. Pierce,	Jaffrey.
Jno. C. Webster,	Danbury.	Josiah Fleeman,	Wilton.
James Taft,	Greenville.	Wm. O. Folsom,	Henniker.
J. H. Nutting,	Candia.	G. L. Dearborn,	Newmarket.
J. G. Bartlett,	Suncook.	F. S. Fletcher,	Charlestown.
A. D. Brown,	Epping.	Crawford, Tolles & Co.,	Farmington.
Morrill & Danforth,	Concord.		

CITIZENS' FIRE INSURANCE COMPANY.

[Organized December 28, 1888. Commenced business December 29, 1888.]

DANIEL HALL, *President*.H. A. REDFIELD, *Secretary*.

Principal office, Dover.

CASH CAPITAL, \$10,000.00.

I. ASSETS.

Cash in company's office.....	\$81.90
Cash deposited in banks:	
Savings Bank for County of Strafford.....	\$3,000.00
Dover Five-Cent Savings Bank.....	3,000.00
Dover National Bank.....	13,815.15
	<u>\$19,815.15</u>
Interest due and accrued.....	74.26
Due from Dover Mutual Fire Insurance Co., for re-insurance	3,192.38
	<u>\$23,163.69</u>
Gross assets.....	\$23,163.69

II. LIABILITIES.

Gross amount of unpaid losses.....	\$947.01
Unearned premiums taken at 50 per cent of gross premiums..	9,886.99
	<u>\$10,834.00</u>
Gross liabilities, except capital and surplus.....	\$10,834.00
Paid-up capital.....	\$10,000.00
Surplus over capital.....	2,329.69
	<u>\$12,329.69</u>
Surplus as regards policy holders.....	\$12,329.69
Total liabilities, including capital and surplus.....	<u><u>\$23,163.69</u></u>

III. INCOME.

Cash received of Dover Mutual Fire Ins. Co., for re-insurance	\$13,163.69
Gross cash income.....	<u>\$13,163.69</u>

IV. EXPENDITURES.

(None.)

AGENTS.

F. M. Hughes,	Ashland.	G. M. Stevens & Son,	Lancaster.
Dearborn & Chase,	Bristol.	Dewey, Peck & Co.,	Lebanon.
Jackman & Lang,	Concord.	A. J. Barrett,	Littleton.
C. O. Eastman,	Claremont.	Caleb Richardson,	Nashua.
T. F. Johnson,	Colebrook.	F. W. Cheney,	Newport.
H. A. Redfield,	Dover.	J. P. Huckins,	Plymouth.
Leach & Barnard,	Franklin.	R. B. Hatch,	Peterborough.
Crawford, Tolles & Co.,	Farmington.	J. P. Morse,	Portsmouth.
G. H. Aldrich & Son,	Keene.	A. S. Parshley,	Rochester.
Melcher & Prescott,	Laconia.	R. S. Perkins,	Tilton.

FIRE UNDERWRITERS' ASSOCIATION.

[Organized December 22, 1886. Commenced business January 1, 1887.]

LYMAN JACKMAN, *President.*THOMAS M. LANG, *Secretary.*

Principal office, 39 North Main street, Concord.

CASH CAPITAL, \$10,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$5,650.00
Interest due and accrued thereon.....	105.67
Value of lands mortgaged.....	\$14,600.00
Value of buildings thereon.....	5,000.00
Insurance held as collateral	4,750.00

SCHEDULE OF STOCKS AND BONDS.

STOCKS.	Par Value.	Market Value.
Chicago, Burlington & Quincy R. R..	\$1,000.00	\$1,097.50
Atchison, Topeka & Santa Fe R. R. . .	1,000.00	580.00
Chicago, Rock Island & Pacific R. R.	1,000.00	977.50
Northwestern Guaranty Loan Co.	500.00	500.00
Capital Fire Insurance Co.	200.00	200.00

<i>BONDS.</i>		<i>Par Value.</i>	<i>Market Value.</i>
Xenia, Ohio, Water Co. bonds.....	\$1,000.00	\$1,000.00	
Chicago, Kansas & Western R. R....	1,000.00	880.00	
Iowa Loan & Trust Co., deb.....	500.00	500.00	
Muscatine Mortgage & Trust Co., deb.	1,000.00	1,000.00	
Nebraska Loan & Trust Co., deb.....	1,000.00	1,000.00	
Central Loan & Trust Co., deb.....	3,000.00	3,000.00	
Davidson Investment Co., deb.....	5,000.00	5,000.00	
N. H. Trust Co., deb.....	5,000.00	5,000.00	
Total par and market values....	\$21,200.00	\$20,735.00	\$20,735.00
Cash in the company's office.....			1,099.89
Cash deposited in banks:			
Mechanicks National Bank.....		\$752.50	
New Hampshire Savings Bank.....		1,654.84	
Merrimack County Savings Bank.....		2,260.46	
			\$4,667.80
Interest due and accrued			235.94
Gross premiums in course of collection.....			4,268.31
Loans on personal security.....			1,475.00
Gross assets.....			\$38,237.61

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$1,369.65	
reported, but not adjusted.....	500.00	
resisted, including interest and expenses	500.00	
Net amount of unpaid losses.		\$2,369.65
Unearned premiums taken at 50 per cent of gross premiums		20,088.33
Due and accrued for salaries, rent, and incidental expenses..		595.90
Commissions and brokerage.....		784.77
Gross liabilities, except capital and surplus.....		\$23,838.65
Paid-up capital.....	\$10,000.00	
Surplus over capital.....	4,398.96	
Surplus as regards policy holders.....		\$14,398.96
Total liabilities, including capital and surplus.....		\$38,237.61

III. INCOME.

Cash received for gross premiums.....	\$34,250.09	
Deduct re-insurance and return premiums.....	3,843.55	
		<hr/>
Net cash received for premiums.....		\$30,406.54
Received for interest on mortgages.....		354.75
Interest and dividends from all other sources.....		989.49
		<hr/>
Gross cash income		\$31,750.78

IV. EXPENDITURES.

Gross amount paid for losses.....	\$14,401.53	
Deduct salvage and re-insurance.....	13.56	
		<hr/>
Net amount paid for losses during the year.....		\$14,387.97
Dividends paid stockholders.....		500.00
Commissions and brokerage.....		5,392.41
Salaries and fees of officers and employees.....		1,600.00
State and local taxes.....		100.00
All other payments and expenditures.....		1,308.80
		<hr/>
Gross cash expenditures.....		\$23,289.18

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$1,705,716.47	\$23,878.63
Risks written during the year.....	2,180,300.61	37,912.90
		<hr/>
Total	\$3,886,017.08	\$61,791.53
Risks terminated during the year.....	899,451.10	18,335.78
		<hr/>
In force at end of the year.....	\$2,986,565.98	\$43,455.75
Deduct amount re-insured.....	213,271.97	3,279.10
		<hr/>
Net amount in force Dec. 31, 1888.....	\$2,773,294.01	\$40,176.65
Premiums received from organization to date.....		\$80,144.20
Losses paid from organization to date.....		29,049.45
Losses incurred during the year 1888.....		14,257.62
Cash dividends declared since commencing business.....		500.00
Company's stock owned by the directors, at par value.....		9,900.00
Dividends declared during the year 1888 (5 per cent).....		500.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,562,104.24
Gross premiums received thereon.....	24,693.19
Losses paid during the year.....	9,447.29
Losses incurred during the year.....	9,316.94

AGENTS.

J. A. Fuller,	Contoocook.	Alfred R. Evans,	Gorham.
N. A. Frost,	Hanover.	T. F. Johnson,	Colebrook.
George H. Tilden,	Keene.	Leach & Barnard,	Franklin.
Fred W. Cheney,	Newport.	Chester Abbott,	Woodsville.
B. H. Corning,	Littleton.	George W. Wiggin,	Exeter.
Melcher & Prescott,	Laconia.	Jackman & Lang,	Concord.
Dexter Chase,	Lancaster.	William M. Knowlton,	Milford.
Crawford, Tolles & Co.,	Great Falls.	C. M. Edgerly,	Manchester.
C. M. DeRochmont,	Portsmouth.	Caleb Richardson,	Nashua.
A. S. Parshley,	Rochester.	Crawford, Tolles & Co.,	Dover.
R. B. Hatch,	Peterborough.	R. S. Perkins,	Tilton.
Dewey, Peck & Co.,	Lebanon.	J. P. Huckins,	Plymouth.
Dearborn & Chase,	Bristol.	J. H. Ballard,	Concord.
Charles F. Parker,	Wolfeborough.	A. A. Ramsey,	Wilton.
C. J. Kelsea,	Lisbon.	L. H. Eastman,	Conway.
C. O. Eastman,	Claremont.	Charles F. Davis,	Bradford.
S. D. Downes,	Francestown.	W. O. Folsom,	Henniker.

GRANITE STATE FIRE INSURANCE COMPANY.

[Incorporated July 17, 1885.

Commenced business November 12, 1885.]

FRANK JONES, *President.*A. F. HOWARD, *Secretary.*

Principal office, Portsmouth.

CASH CAPITAL, \$200,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$106,250.00
Interest due and accrued thereon.....	2,136.09
Value of lands mortgaged.....	\$123,500.00
Value of buildings thereon	157,000.00
Insurance held as collateral.....	137,000.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Lake Nat'l Bank, Wolfeboro', N. H..	\$12,000.00	\$12,600.00
Dover, N. H., Gas-light Co.	2,500.00	3,000.00
Worcester, Nashua & Roch. R. R. Co.	100.00	125.00
Eastern R. R. Co.	7,700.00	9,548.00
Nat'l Loan & T. Co., Kan. City, Mo.	5,000.00	5,000.00

BONDS.

Carroll County, N. H.	200.00	200.00
Town of Harrisville, N. H.	15,000.00	15,900.00
City of Manchester, N. H.	100,000.00	107,500.00
Fort Plain, N. Y., Water Co.	10,000.00	10,500.00
New Hampshire Trust Co., deb.	15,000.00	15,000.00
New York & New England R. R.	10,000.00	12,400.00
Xenia, Ohio, Water Co.	6,000.00	6,000.00
St. Cloud Gas & Electric Co.	5,000.00	5,000.00

Total par and market values...	\$188,500.00	\$202,773.00	\$202,773.00
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COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>
Chippewa Falls, Wis., Water-works Co., bonds.	\$3,000.00	\$2,480.00
Amount loaned thereon.		\$2,480.00
Cash in company's office.		279.10
Cash deposited in New Hampshire National Bank, Portsmouth		43,768.23
Interest due and accrued.		3,189.47
Gross premiums in course of collection.		42,028.08
Gross assets.		\$402,903.97

II. LIABILITIES.

Losses adjusted, due, and to become due.	\$4,141.97
reported, but not adjusted.	14,119.00
resisted, including interest and expenses	1,500.00
Gross amount of claims for losses	\$19,760.97
Deduct re-insurance thereon.	5,920.33
Net amount of unpaid losses.	\$13,840.64
Unearned premiums taken at 50 per cent of gross premiums	160,067.52
Commissions and brokerage.	7,034.42
Gross liabilities, except capital and surplus.	\$180,942.58

Paid-up capital.....	\$200,000.00	
Surplus over capital.....	21,961.39	
	<hr/>	
Surplus as regards policy holders.....		\$221,961.39
Total liabilities, including capital and surplus.....		<hr/> \$402,903.97 <hr/>

III. INCOME.

Cash received for gross premiums.....	\$397,312.80	
Deduct re-insurance and return premiums.....	115,971.69	
	<hr/>	
Net cash received for premiums.....		\$281,341.11
Received for interest on mortgages.....		6,801.47
Interest and dividends from all other sources.....		10,930.94
		<hr/>
Gross cash income.....		\$299,073.52

IV. EXPENDITURES.

Gross amount paid for losses.....	\$201,602.28	
Deduct salvage and re-insurance.....	17,228.58	
	<hr/>	
Net amount paid for losses during the year.....		\$184,373.70
Commissions and brokerage.....		44,238.38
Salaries and fees of officers and employees.....		11,874.00
State and local taxes.....		6,079.96
Office, agency, and incidental expenses.....		22,366.39
		<hr/>
Gross cash expenditures.....		\$268,932.43

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$23,091,311.00	\$311,312.99
Risks written during the year.....	27,046,185.00	372,593.14
	<hr/>	<hr/>
Total	\$50,137,496.00	\$683,906.13
Risks terminated during the year.....	20,847,607.00	299,846.80
	<hr/>	<hr/>
In force at end of the year.....	\$29,289,889.00	\$384,059.33
Deduct amount re-insured.....	4,669,791.00	63,924.29
	<hr/>	<hr/>
Net amount in force Dec. 31, 1888....	\$24,620,098.00	\$320,135.04
Premiums received from organization to date.....		\$935,131.92
Losses paid from organization to date.....		371,984.04
Losses incurred during the year 1888....		181,280.03
Company's stock owned by the directors, at par value.....		106,000.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$12,782,444.00
Gross premiums received thereon.....	120,787.82
Losses paid during the year.....	42,906.11
Losses incurred during the year.....	44,213.58

AGENTS.

Charles R. Jameson, E. M. Smith, W. B. Rotch, F. M. Hughes, G. W. Stone, R. M. Chamberlin, J. K. Lund, Dearborn & Chase, Morrill & Danforth, J. H. Dudley, C. O. Eastman, L. H. Eastman, H. W. Bond, George B. Prescott, Bartlett & Shepard, F. D. Currier, F. S. Pierce, Leach & Barnard, G. W. Cummings, Crawford, Tolles & Co., H. R. Evans, James Taft, N. A. Frost, W. F. Westgate, D. S. Carr, S. W. Holman, E. J. Temple, G. H. Aldrich & Son, L. G. Hoyt, Fred R. Felch, George W. Gleason, Weston & Shute, F. T. Currier,	Antrim. Alstead. Amherst. Ashland. Andover. Berlin Falls. Bradford. Bristol. Concord. Colebrook. Claremont. Conway. Charlestown. Dover. Derry. East Canaan. East Jaffrey. Franklin. Fracestown. Great Falls. Gorham. Greenville. Hanover. Haverhill. Henniker. Hillsboro' Br. Hinsdale. Keene. Kingston. Derry Depot. Dublin. Exeter. Enfield.	G. M. Stevens & Son, Melcher & Prescott, Dewey, Peck & Co., A. A. Woolson, A. J. Barrett, H. H. Holt, C. E. Edgerly, S. W. Rollins, R. M. Wallace, McKean & Andrews, C. H. Haley, N. T. Greenwood, F. W. Preston, E. P. Fox, Gage, Buxton & Co., F. G. Clarke, Burleigh & Adams, John Pender, John Sise, C. M. DeRochmont, Hillsley & Moore, A. S. Parshley, J. H. Wilkinson, J. G. Bartlett, A. T. Cass, W. C. Fox, A. P. Davis, Beacham & Foote, Crawford, Tolles & Co., George E. Dame & Co., Chester Abbott, Henry Abbott,	Lancaster. Laconia. Lebanon. Lisbon. Littleton. Lyme. Manchester. Meredith. Milford. Nashua. Newmarket. New London. New Ipswich. New Boston. Penacook. Peterborough. Plymouth. Portsmouth. Portsmouth. Portsmouth. Portsmouth. Rochester. S. Newmarket. Suncook. Tilton. Wolfeborough. Warner. Wolfeboro' Junc. Farmington. Newport. Woodsville. Winchester.
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SOLICITORS.

Joseph W. Bean, George F. Berry, I. P. Berry, A. P. Brown, C. E. Bunker, J. C. Butler, J. G. Bellows, H. P. Daniels, James M. Davis, Samuel Dodge, E. G. Flanders, George C. Gordon, H. N. Gould,	Derry Depot. Pittsfield. New Durham. Epping. Rumney. Portsmouth. Walpole. N. Nottingham. Plaistow. Portsmouth. Brentwood. Salem. Newton.	E. M. Heard, C. A. Hazlett, H. J. Jones, Paul Lang, Joseph P. Morse, Abbott Norris, C. R. Oxford, H. S. Paul, A. A. Ramsey, Bailey Sargent, J. M. Sargent, J. M. Williams,	C. Sandwich. Portsmouth. Alton. Orford. Portsmouth. Hampton. Portsmouth. Portsmouth. Wilton. Danville. Belmont. Warren.
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GUARANTY FIRE INSURANCE COMPANY.

[Organized February 27, 1886. Commenced business March 6, 1886.]

ALBERT A. PERKINS, *President*.ALMON D. TOLLES, *Secretary*.

Principal office, Great Falls.

CASH CAPITAL, \$20,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....			\$10,000.00
<i>BONDS.</i>			
	<i>Par Value.</i>	<i>Market Value.</i>	
Colorado Springs Water-works bond..	\$10,000.00	\$10,300.00	
			\$10,300.00
<i>COLLATERAL LOANS.</i>			
	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
60 shares N. Y. & N. E. R. R. stock..	\$2,640.00	\$2,000.00	
Non-resident taxes secured by lien on			
63 shares of stock of company....	6,300.00	89.90	
Total.....	\$8,940.00	\$2,089.90	\$2,089.90
Cash deposited in banks:			
Somersworth National Bank.....		\$1,306.80	
Somersworth Savings Bank.....		8,468.92	
			\$9,775.72
Interest due and accrued.....			211.00
Gross premiums in course of collection.....			3,750.55
Loan on personal security			2,500.00
All other property.....			600.00
Gross assets.....			\$39,227.17

II. LIABILITIES.

Losses resisted, including interest and expenses	\$1,200.00	
Net amount of unpaid losses.....		\$1,200.00

Unearned premiums taken at 50 per cent of gross premiums.	\$16,982.30
Commissions and brokerage.....	401.82
Gross liabilities, except capital and surplus.....	<u>\$18,584.12</u>
Paid-up capital.....	\$20,000.00
Surplus over capital.....	643.05
Surplus as regards policy holders.....	<u>\$20,643.05</u>
Total liabilities, including capital and surplus.....	<u><u>\$39,227.17</u></u>

III. INCOME.

Cash received for gross premiums.....	\$30,631.19
Deduct re-insurance and return premiums.....	<u>3,000.39</u>
Net cash received for premiums.....	\$27,630.80
Interest and dividends from all sources	<u>1,898.92</u>
Gross cash income.....	<u><u>\$29,529.72</u></u>

IV. EXPENDITURES.

Gross amount paid for losses.....	\$13,981.03
Deduct re-insurance.....	<u>517.10</u>
Net amount paid for losses during the year.....	\$13,463.93
Commissions and brokerage.....	4,605.21
Salaries and fees of officers and employees.....	1,498.33
State and local taxes	<u>200.00</u>
Gross cash expenditures.....	<u><u>\$19,767.47</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$1,576,959.27	\$25,065.45
Risks written during the year.....	<u>1,837,201.43</u>	<u>32,871.93</u>
Total.....	\$3,414,160.70	\$57,937.38
Risks terminated during the year.....	<u>1,268,993.63</u>	<u>22,897.93</u>
In force at the end of the year.....	\$2,145,167.07	\$35,039.45
Deduct amount re-insured.....	<u>75,402.80</u>	<u>1,074.84</u>
Net amount in force December 31, 1888..	\$2,069,764.27	\$33,964.61

Premiums received from organization to date.....	\$75,588.42
Losses paid from organization to date.....	39,723.77
Losses incurred during the year 1888	10,723.00
Cash dividends declared since commencing business.....	600.00
Company's stock owned by the directors, at par value.....	8,800.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,238,719.88
Gross premiums received thereon.....	20,052.28
Losses paid during the year.....	8,478.15
Losses incurred during the year.....	5,888.11

AGENTS.

G. H. Aldrich & Son,	Keene.	Burleigh & Adams,	Plymouth.
A. Elliott & Co.,	Manchester.	F. R. Felch,	Derry Depot.
Leach & Barnard,	Franklin.	Dewey, Peck & Co.,	Lebanon.
Melcher & Prescott,	Laconia.	T. F. Johnson,	Colebrook.
Dexter Chase,	Lancaster.	F. S. Pierce,	East Jaffrey.
W. C. Fox,	Wolfeborough.	S. Richardson,	Claremont.
Samuel Dodge,	Portsmouth.	F. G. Clarke,	Peterborough.
R. M. Wallace,	Milford.	A. J. Barrett,	Littleton.
M. R. Buxton,	Nashua.	W. O. Folsom,	Henniker.
F. W. Cheney,	Newport.	Crawford, Tolles & Co.,	Dover.
Jackman & Lang,	Concord.	Crawford, Tolles & Co.,	Great Falls.
W. P. Whiteher,	Lisbon.	W. F. Thompson,	North Conway.

MANCHESTER CITY FIRE INSURANCE COMPANY.

[Incorporated August, 1887. Commenced business October 17, 1887.]

WILLIAM J. HOYT, *President.*

LUCIEN B. CLOUGH, *Secretary.*

Principal office, Manchester.

CASH CAPITAL, \$50,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$38,175.00
Interest due and accrued thereon.....	771.91
Value of lands mortgaged.....	\$90,675.00
Value of buildings thereon.....	43,250.00
Insurance held as collateral.....	29,674.00

<i>BONDS.</i>		<i>Par Value.</i>	<i>Market Value.</i>	
New Hampshire Trust Co., deb.....		<u>\$5,000.00</u>	<u>\$5,000.00</u>	\$5,000.00
Cash in the company's office.....				1,583.04
Cash deposited in banks:				
Manchester Savings Bank.....			\$950.00	
Amoskeag Savings Bank.....			1,000.00	
People's Savings Bank.....			510.42	
Manchester National Bank.....			<u>397.80</u>	
				\$2,858.22
Interest due and accrued.....				186.75
Gross premiums in course of collection.....				521.63
Loans on personal security.....				<u>8,000.00</u>
Gross assets.....				<u>\$57,096.55</u>

II. LIABILITIES.

Unearned premiums taken at 50 per cent of gross premiums..		\$1,909.01
Gross liabilities, except capital and surplus.....		<u>\$1,909.01</u>
Paid-up capital.....	\$50,000.00	
Surplus over capital.....	<u>5,187.54</u>	
Surplus as regards policy holders.....		<u>\$55,187.54</u>
Total liabilities, including capital and surplus.....		<u><u>\$57,096.55</u></u>

III. INCOME.

Cash received for gross premiums.....	\$2,723.05	
Deduct re-insurance and return premiums.....	<u>225.06</u>	
Net cash received for premiums.....		\$2,497.99
Received for interest on mortgages, and from all other sources		<u>3,369.67</u>
Gross cash income		<u>\$5,867.66</u>

IV. EXPENDITURES.

Commissions and brokerage.....	\$56.87
State and local taxes.....	500.00
Office and incidental expenses.....	31.38
Accrued interest on securities purchased.....	<u>274.16</u>
Gross cash expenditures.....	<u><u>\$862.41</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$119,950.00	\$1,121.69
Risks written during the year.....	336,750.00	2,921.85
Total	<u>\$456,700.00</u>	<u>\$4,043.54</u>
Risks terminated during the year.....	11,300.00	68.76
In force at the end of the year.....	<u>\$445,400.00</u>	<u>\$3,974.78</u>
Deduct amount re-insured	19,750.00	156.75
Net amount in force December 31, 1888..	<u>\$425,650.00</u>	<u>\$3,818.03</u>
Premiums received from organization to date.....		\$3,587.16

NEW HAMPSHIRE BUSINESS.

This company has no business outside of New Hampshire.

MASCOMA FIRE INSURANCE COMPANY.

[Organized November 29, 1886. Incorporated July 28, 1887. Commenced business
December 26, 1886.]

ALBERT M. SHAW, *President.*

ALPHEUS W. BAKER, *Secretary.*

Principal office, Lebanon.

CASH CAPITAL, \$25,000.00.

I. ASSETS.

Loans on mortgages of real estate(first liens)	\$25,957.00
Interest due and accrued thereon.....	546.45
Value of lands mortgaged.....	\$62,270.00
Value of buildings thereon.....	24,730.00
Insurance held as collateral.....	10,500.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>	
Bank of Downs, Kansas.....	\$1,700.00	\$1,700.00	
<i>BONDS.</i>			
New Hampshire Trust Co., deb....	5,000.00	5,000.00	
Dakota Investment Bonds, deb....	1,950.00	1,950.00	
Nat'l Loan & Trust Co., Kan., deb.	2,500.00	2,500.00	
Dist. No. 1, Garfield Co., Col.....	1,000.00	1,000.00	
Total par and market values..	\$12,150.00	\$12,150.00	\$12,150.00
Cash deposited in banks:			
National Bank of Lebanon		\$2,170.00	
Cawker City Bank, Kansas.....		2,000.00	
			\$4,170.00
Interest due and accrued.....			408.86
Gross premiums in course of collection.....			2,342.12
Gross assets.....			\$45,574.43

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$291.30	
reported, but not adjusted.....	550.00	
Net amount of unpaid losses		\$841.30
Unearned premiums taken at 50 per cent of gross premiums		14,638.71
Due and accrued for salaries, rent, and incidental expenses..		222.20
Commissions and brokerage.....		378.80
Gross liabilities, except capital and surplus.....		\$16,081.01
Paid-up capital.....	\$25,000.00	
Surplus over capital.....	4,493.42	
Surplus as regards policy holders.....		\$29,493.42
Total liabilities, including capital and surplus.....		\$45,574.43

III. INCOME.

Cash received for gross premiums.....	\$25,622.42	
Deduct re-insurance and return premiums.....	2,128.93	
Net cash received for premiums.....		\$23,493.49
Received for interest on mortgages.....		1,467.62
Interest and dividends from all other sources.....		735.77
Gross cash income.....		\$25,696.88

IV. EXPENDITURES.

Gross amount paid for losses.....	\$5,636.00	
Deduct salvage and re-insurance.....	98.15	
		<hr/>
Net amount paid for losses during the year.....		\$5,537.85
Commissions and brokerage.....		3,681.98
Salaries and fees of officers and employees.....		1,755.00
State and local taxes.....		250.00
All other payments and expenditures		1,024.77
		<hr/>
Gross cash expenditures.....		\$12,249.60
		<hr/> <hr/>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$1,258,652.09	\$18,043.09
Risks written during the year.....	1,758,669.77	26,793.98
	<hr/>	<hr/>
Total	\$3,017,321.86	\$44,837.07
Risks terminated during the year.....	896,169.26	14,478.00
	<hr/>	<hr/>
In force at the end of the year.....	\$2,121,152.60	30,359.07
Deduct amount re-insured.....	93,803.80	1,081.65
	<hr/>	<hr/>
Net amount in force December 31, 1888..	\$2,027,348.80	\$29,277.42
Premiums received from organization to date.....		\$56,089.30
Losses paid from organization to date.....		21,451.53
Losses incurred during the year 1888.....		5,927.30
Company's stock owned by the directors, at par value		16,100.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,758,669.77
Gross premiums received thereon.....	26,793.98
Losses paid during the year.....	5,537.85
Losses incurred during the year.....	5,927.30

AGENTS.

R. P. Staniels & Co.,	Concord, N. H.	N. A. Frost,	Hanover.
B. H. Corning,	Littleton.	Weston & Shute,	Exeter.
Henry H. Holt,	Lyme.	L. H. Eastman,	Conway.
Frank D. Currier,	Canaan.	Pattee & Currier,	Enfield.
Melcher & Prescott,	Laconia.	H. W. Bond,	Charlestown.
John Pender,	Portsmouth,	R. M. Wallace,	Milford.
Dewey, Peck & Co.,	Lebanon.	Jas. E. French,	Moultonborough,
Francis M. Hughes,	Ashland.	J. C. Campbell,	Hillsborough Br.
Crawford, Tolles & Co.,	Great Falls.	W. P. Whiteher,	Lisbon.
Crawford, Tolles & Co.,	Dover.	T. F. Johnson,	Colebrook.
H. S. Osgood,	Claremont.	W. Burleigh & Co.,	Franklin Falls.
Z. C. Perkins,	Tilton.	S. D. Downes,	Francetown.
Fred W. Cheney,	Newport.	Chester Abbott,	Woodsville.
M. R. Buxton,	Nashua.	F. R. Felch,	Derry Depot.
Beacham & Foote,	Wolfeboro' Junc.	Dearborn & Chase,	Bristol.
A. S. Parshley,	Rochester.	Geo. M. Stevens & Son,	Lancaster.
A. R. Evans,	Gorham.	C. M. Edgerly,	Manchester.
G. H. Aldrich & Son,	Keene.	R. N. Chamberlain,	Berlin Falls.
Burleigh & Adams,	Plymouth.	Geo. C. Gordon,	Salem.
D. M. White,	Peterborough.	A. P. Davis,	Warner.
Wm. O. Folsom,	Henniker.	Geo. W. Stone,	Andover.
Paul Lang,	Orford.		

NEW HAMPSHIRE FIRE INSURANCE COMPANY.

[Incorporated July 7, 1869. Commenced business April, 1870.]

JAMES A. WESTON, *President*.JOHN C. FRENCH, *Secretary*.

Principal office, Elm street, Manchester.

CASH CAPITAL, \$600,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$362,996.86
Interest due and accrued thereon.....	6,448.76
Value of lands mortgaged.....	\$716,052.00
Value of buildings thereon.....	441,200.00
Insurance held as collateral.....	244,025.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Suncook Valley R. R.....	\$4,000.00	\$4,600.00
Merchants' Nat'l Bank, Manchester	10,000.00	12,500.00
N. Y. Central & Hudson River R. R.	10,000.00	10,700.00
Norwich & Worcester R. R.....	3,100.00	5,425.00
Pemigewasset Valley R. R.....	26,000.00	27,300.00
Chicago, Burlington & Quincy R. R.	44,000.00	47,080.00
Chicago, Burlington & Northern R.R.	3,000.00	1,380.00
Atchison, Topeka & Santa Fe R. R.	21,500.00	12,255.00
Illinois Central R. R.....	30,000.00	33,900.00
Chicago, Rock Island & Pacific R. R.	10,000.00	9,600.00
Amoskeag Manufacturing Co.....	5,000.00	9,500.00
Pemigewasset Nat'l Bank, Plymouth	6,000.00	6,600.00
Lake Shore & Mich. Southern R. R.	10,000.00	10,000.00
<i>BONDS.</i>		
U. S. Government.....	250,000.00	313,000.00
City of Manchester, N. H., 6s.....	700.00	700.00
City of Chicago, Ill., 7s.....	10,000.00	11,000.00
City of Marietta, Ohio, 8s.....	10,000.00	11,000.00
City of Concord, N. H., 6s.	1,000.00	1,200.00
Michigan Air Line R. R., 8s.....	10,000.00	10,500.00
Maine Central R. R., 6s.....	10,000.00	12,000.00
Burlington & Missouri River R. R...	10,000.00	11,000.00
Chicago, Burlington & Quincy R. R.	25,000.00	29,050.00
Jackson, Lansing & Saginaw R. R..	10,000.00	10,800.00
New York & New England R. R., 7s	10,000.00	12,300.00
New York & New England R. R., 6s	10,000.00	11,300.00
Union Pacific R. R., 8s.....	25,000.00	29,750.00
Union Pacific R. R. Trust, 5s.....	10,000.00	9,500.00
Oregon Short Line R. R., 6s	10,000.00	10,800.00
Boston, Concord & Montreal R. R., 6s	62,000.00	65,100.00
Hillsborough County, N. H., 6s....	5,000.00	5,500.00
Chicago & West Michigan R. R., 5s	25,000.00	23,750.00
Topeka (Kan.) Water-supply Co., 6s	20,000.00	20,500.00
Minneapolis Gas-light Co.....	20,000.00	21,000.00
Chicago, Burlington & Northern R.R.	5,000.00	4,850.00
New Mexico & So. Pacific R. R., 7s.	10,000.00	11,500.00
New Hampshire Trust Co., deb., 6s	30,000.00	30,600.00
Central Loan & Land Co., deb., 6s..	20,000.00	20,000.00
Johnson Loan & Trust Co., deb., 6s	10,000.00	10,000.00
Atch., Topeka & Santa Fe R. R., 6s	10,000.00	10,000.00

	<i>Par Value.</i>	<i>Market Value.</i>	
City of Topeka, Kansas, 6s	\$10,000.00	\$10,250.00	
City of Omaha, Neb., 6s.....	10,000.00	10,500.00	
City of Moorhead, Minn., 7s.....	6,000.00	6,000.00	
City of Lincoln, Neb., 6s.....	20,000.00	20,000.00	
National Loan & Trust Co., 6s	10,000.00	10,000.00	
Total par and market values...	<u>\$857,300.00</u>	<u>\$953,690.00</u>	<u>\$953,690.00</u>

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
People's Savings Bank, Manchester	\$2,926.72	\$3,000.00	
Boston Water Power.....	1,800.00		
Manchester Mills.....	700.00		
Manchester & Lawrence R. R.....	1,680.00	2,700.00	
Moline Plow Company	1,600.00		
Dist. Paving Bonds, Lincoln, Neb.	24,000.00	20,000.00	
N. Y. Cen. & Hudson River R. R.	2,568.00	2,050.00	
Chicago, Burlington & Quincy R. R.	432.00		
“ “ “	5,400.00		
“ “ “	9,280.00	12,000.00	
Pullman Palace Car Co.....	6,120.00		
Note secured by mortgage.....	2,700.00	1,650.00	
N. Y. Cen. & Hudson River R. R.	5,400.00	8,200.00	
Lake Shore & Mich. Southern R. R.	5,000.00		
Certificate Guaranty Savings Bank, Manchester.....	1,200.00		
Total amounts.....	<u>\$70,806.72</u>	<u>\$52,600.00</u>	<u>\$52,600.00</u>
Cash in the company's office.....			8,249.84
Cash deposited in banks.....			53,687.12
Gross premiums in course of collection.....			67,428.42
Gross assets.....			<u>\$1,505,101.00</u>

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$35,618.75	
reported, but not adjusted.....	33,421.00	
not reported, estimated.....	<u>20,000.00</u>	
Net amount of unpaid losses.....		<u>\$89,039.75</u>

Unearned premiums on outstanding risks.....	\$498,223.78
Fifty per cent on risks for one year or less.....	\$233,771.08
Pro rata on risks for more than one year.....	264,452.70
Commissions and brokerage.....	13,485.68
Gross liabilities, except capital and surplus.....	\$600,749.21
Paid-up capital.....	\$600,000.00
Surplus over capital.....	304,351.79
Surplus as regards policy holders.....	\$904,351.79
Total liabilities, including capital and surplus.....	<u>\$1,503,101.00</u>

III. INCOME.

Cash received for gross premiums... ..	\$796,225.35
Deduct re-insurance and return premiums	114,205.92
Net cash received for premiums.....	\$682,019.43
Received for interest on mortgages.....	18,697.69
Interest and dividends from all other sources.....	46,123.71
Received for increased capital.....	\$100,000.00
Gross cash income.....	<u>\$746,840.83</u>

IV. EXPENDITURES.

Gross amount paid for losses during the year.....	\$353,125.04
Dividends paid stockholders.....	40,000.00
Commissions and brokerage... ..	135,099.75
Salaries and fees of officers and employees.....	35,982.81
State and local taxes.....	18,862.76
All other payments and expenditures.....	33,367.65
Gross cash expenditures.....	<u>\$616,438.01</u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$65,218,960.00	\$804,276.12
Risks written during the year.....	69,480,389.00	812,322.30
Total.....	\$134,699,349.00	\$1,616,598.42
Risks terminated during the year.....	58,715,375.00	658,461.43
In force at the end of the year.....	\$75,983,974.00	\$958,136.99
Deduct amount re-insured.....	2,783,001.00	32,850.48
Net amount in force Dec. 31, 1888.....	\$73,200,973.00	\$925,286.51
Premiums received from organization to date.....	\$6,027,712.78	
Losses paid from organization to date.....	3,020,275.36	
Losses incurred during the year 1888.....	371,070.30	
Cash dividends declared since commencing business.....	444,000.00	
Company's stock owned by the directors, at par value.....	158,300.00	
Dividends declared during the year 1888 (8 per cent).....	40,000.00	

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$14,387,362.00
Gross premiums received thereon.....	154,961.70
Losses paid during the year.....	52,099.39
Losses incurred during the year.....	52,176.47

AGENTS.

E. W. Baker,	Antrim.	Dewey, Peck & Co.,	Lebanon.
W. G. Everett,	Amoskeag.	Melcher & Prescott,	Laconia.
J. K. Lund,	Bradford.	G. M. Stevens & Son,	Lancaster.
A. N. Chamberlin,	Berlin Falls.	B. H. Corning,	Littleton.
R. P. Staniels & Co.,	Concord.	R. M. Wallace,	Milford.
C. O. Eastman,	Claremont.	M. R. Buxton,	Nashua.
H. W. Bond,	Charlestown.	R. C. Osgood,	Newport.
H. A. Redfield,	Dover.	Burleigh & Adams,	Plymouth.
Bartlett & Shepard,	Derry.	F. G. Clarke,	Peterborough.
E. B. Huse,	Enfield.	C. A. Hazlett,	Portsmouth.
C. M. Edgerly,	Manchester.	Gage, Buxton & Co.,	Penacook.
S. D. Downes,	Francestown.	A. S. Parshley,	Rochester.
Leach & Barnard,	Franklin.	R. M. Weeks,	Suncook.
W. D. Knapp,	Great Falls.	R. S. Perkins,	Tilton.
James Taft,	Greenville.	J. G. Bellows,	Walpole.
J. C. Campbell,	Hillsborough.	John H. Beacham,	Wolfeborough.
N. A. Frost,	Hanover.	J. M. Williams,	Warren.
G. H. Aldrich & Son,	Keene.		

PEOPLE'S FIRE INSURANCE COMPANY.

[Incorporated August, 1885. Commenced business November, 1885.]

JOSEPH C. MOORE, *President.*STEPHEN B. STEARNS, *Secretary.*

Principal office, 839 Elm street, Manchester.

CASH CAPITAL, \$250,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$176,195.00
Interest due and accrued thereon.....	2,649.34
Value of lands mortgaged.....	\$248,507.00
Value of buildings thereon.....	204,160.00
Insurance held as collateral.....	129,440.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Granite State Trust Co., 6s.....	\$5,000.00	\$5,000.00

<i>BONDS.</i>		
U. S. Government, 4s.....	92,000.00	117,990.00
Hillsborough County, N. H., 6s....	2,500.00	2,750.00
City of Manchester, N. H., 6s.....	500.00	564.25
City of Portsmouth, N. H., 6s.....	5,000.00	5,750.00
City of Portsmouth, N. H., 4s.....	10,000.00	10,800.00
City of Dover, N. H., 6s.....	35,000.00	36,050.00
Chichester, N. H., 4s.....	1,500.00	1,590.00
Waubunsee Co., Kansas, 7s.....	5,000.00	6,000.00
Arapahoe Co., Colorado, 6s.....	3,000.00	3,090.00
State of Illinois, drainage, 7s.....	7,000.00	8,000.00
James River Valley R. R., 6s.....	10,000.00	11,000.00
New Hampshire Trust Co., 6s.....	15,000.00	15,000.00
Union Mortgage Trust Co., 7s.....	10,000.00	10,000.00
Security Mortgage & Trust Co., 6s.	5,000.00	5,000.00

Total par and market values... \$206,500.00 \$238,584.25 \$238,584.25

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>	
Guaranty Savings Bank, Manchester	\$4,512.00	\$3,200.00.	
First National Bank, Casselton, Dak.	6,250.00	5,000.00	
First National Bank, Marion, Kan...	6,000.00	4,677.99	
Total amounts.....	\$16,762.00	\$12,877.99	\$12,877.99
Cash in the company's office.....			4,931.73
Cash deposited in banks:			
First National Bank.....		\$55,709.39	
Merrimack River Savings Bank.....		2,223.32	
Guaranty Savings Bank.....		2,152.70	
Manchester Savings Bank.....		2,161.24	
People's Savings Bank.....		2,176.19	
			\$64,422.84
Interest due and accrued on bonds.....			3,013.70
Gross premiums in course of collection.....			62,500.91
Gross assets.....			\$565,175.76

II. LIABILITIES.

Losses adjusted, due, and to become due.....	\$18,965.16	
reported, but not adjusted.....	10,484.00	
resisted, including interest and expenses	1,900.00	
Gross amount of unpaid losses.....		\$31,349.16
Unearned premiums taken at 50 per cent of gross premiums		224,262.14
Fifty per cent on risks for one year or less.....	\$158,466.57	
Pro rata on risks for more than one year.....	81,603.46	
Pro rata valuation.....	\$240,070.03	
Due and accrued for salaries, rent, and incidental expenses..		245.57
Commissions and brokerage.....		10,625.15
Return premiums		1,629.46
Gross liabilities, except capital and surplus.....		\$268,111.48
Paid-up capital.....	\$250,000.00	
Surplus over capital.....	47,064.28	
Surplus as regards policy holders.....		\$297,064.28
Total liabilities, including capital and surplus.....		\$565,175.76

III. INCOME.

Cash received for gross premiums.....	\$498,412.06	
Deduct re-insurance and return premiums.....	83,011.19	
Net cash received for premiums		\$415,400.87
Received for interest on mortgages.....		10,560.13
Interest and dividends from all other sources.....		13,848.50
Gross cash income		<u>\$439,809.50</u>

IV. EXPENDITURES.

Gross amount paid for losses during the year.....	\$248,186.57
Commissions and brokerage.....	91,605.54
Salaries and fees of officers and employees.....	14,442.85
State and local taxes.....	6,486.32
All other payments and expenditures, viz.: Expense, advertising, printing, stationery, furniture, and fixtures.....	24,559.40
Gross cash expenditures.....	<u><u>\$385,280.68</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$26,831,764.00	\$368,736.24
Risks written during the year.....	36,935,697.00	510,576.92
Total	<u>\$63,767,461.00</u>	<u>\$879,313.16</u>
Risks terminated during the year.....	29,393,739.00	410,990.05
In force at end of the year.....	<u>\$34,373,722.00</u>	<u>\$468,323.11</u>
Deduct amount re-insured.....	1,390,602.00	19,798.83
Net amount in force Dec. 31, 1888.....	<u>\$32,983,120.00</u>	<u>\$448,524.28</u>
Premiums received from organization to date.....		\$1,100,849.05
Losses paid from organization to date.....		461,078.05
Losses incurred during the year 1888.....		254,085.82
Cash dividends declared since commencing business.....		7,500.00
Company's stock owned by the directors, at par value.....		77,100.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$8,688,962.29
Gross premiums received thereon.....	98,136.76
Losses paid during the year.....	36,961.13
Losses incurred during the year.....	30,665.11

AGENTS.

E. M. Smith,	Alstead.	C. M. Edgerly,	Manchester.
H. J. Jones,	Alton.	J. C. French,	"
William B. Rotch,	Amherst.	A. Elliott & Co.,	"
E. W. Baker,	Antrim.	John G. Lane,	"
F. M. Hughes,	Ashland.	A. J. Lane,	"
R. N. Chamberlain,	Berlin Falls.	L. B. Clough,	"
E. P. Thompson,	Belmont.	E. P. Richardson,	"
L. S. Hayes,	Bellows Falls, Vt.	J. E. Dodge,	"
E. G. Flanders,	Brentwood.	John Dowst,	"
Dearborn & Chase,	Bristol.	William G. Everett,	"
H. S. Osgood,	Claremont.	G. W. Weeks,	"
Morrill & Danforth,	Concord.	O'Connor & Sheehan,	"
J. H. Dudley,	Colebrook.	Charles W. Neal,	Meredith.
L. H. Eastman,	Conway.	R. M. Wallace,	Milford.
John A. Fuller,	Contoocook.	E. J. Copp & A. J. Tuck,	Nashua.
Stilman Clarke,	Danbury.	N. T. Greenwood,	New London.
Bailey Sargent,	Danville.	G. L. Dearbon,	Newmarket.
Bartlett & Shepard,	Derry.	H. N. Gould,	Newton.
F. R. Felch.	Derry Depot.	E. P. Fox,	New Boston.
George B. Prescott,	Dover.	C. H. Oabers,	New Ipswich.
Samuel C. Danforth,	Deerfield.	J. P. Berry,	New Durham.
F. S. Pierce,	East Jaffrey.	George E. Dame & Co.,	Newport.
E. B. Huse,	Enfield.	Gage, Buxton & Co.,	Penacook.
W. H. Stickney,	Epping.	George F. Berry,	Pittsfield.
J. H. Dolbeer,	Epsom Falls.	F. H. Rollins,	Plymouth.
Weston & Shute,	Exeter.	John Pender,	Portsmouth.
Leach & Barnard,	Franklin Falls.	Granite State Ins. Co.,	Portsmouth.
G. W. Cummings,	Franeestown.	D. M. White,	Peterborough.
Crawford, Tolles & Co.,	Farmington.	A. S. Parshley,	Rochester.
Amos J. Blake,	Fitzwilliam.	John G. Bartlett,	Raymond.
J. B. Moore,	Gilmanton.	George C. Gordon,	Salem.
Alfred R. Evans,	Gorham.	J. H. Wilkinson,	S. Newmarket.
Crawford, Tolles & Co.,	Great Falls.	John G. Bartlett,	Suncook.
James Taft,	Greenville.	Arthur T. Cass,	Tilton.
N. A. Frost,	Hanover.	Otis G. Hatch,	Tamworth.
D. S. Carr,	Henniker.	A. P. Davis,	Warner.
J. C. Campbell,	Hillsboro' Br.	George Simons,	Weare.
T. W. Saben,	Hinsdale.	J. Fleeman,	Wilton.
L. G. Hoyt,	Kingston.	W. F. Langley,	Wilmot Center.
Healey & Mason,	Keene.	H. Abbott,	Winchester.
S. C. Clark,	Lake Village.	Ira Banfield,	Wolfeborough.
Melcher & Prescott,	Laconia.	Beachum & Foote,	Wolfeboro' Jc.
G. M. Stevens & Son,	Lancaster.	Chester Abbott,	Woodsville.
Dewey, Peck & Co.,	Lebanon.	Williams Bros.,	Warren.
B. H. Corning,	Littleton.	Jones Frankie,	Haverhill, Mass.
A. A. Woolson,	Lisbon.	J. F. Smith,	Haverhill, Mass.
H. H. Holt,	Lyme.	Thomas Bevington,	Lawrence, Mass
G. M. Sanborn,	Manchester.	Sherman & Jenne,	Brattleboro', Vt

PORTSMOUTH FIRE ASSOCIATION.

[Incorporated October 22, 1887. Commenced business November 1, 1887.]

FRANK JONES, *President*.ALFRED F. HOWARD, *Secretary*.

Principal office, 32 Congress street, Portsmouth.

CASH CAPITAL, \$50,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens)	\$21,000.00
Interest accrued thereon	232.50
Value of lands mortgaged	\$34,000.00
Value of buildings thereon	22,000.00
Insurance held as collateral	14,350.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Nat'l Loan & Trust Co., Kan. City, Mo.	\$5,000.00	\$5,000.00
<i>BONDS.</i>		
Emporia Electric & Gas-light Co...	10,000.00	10,000.00
Columbia Co., Wash. T., Court-house	5,000.00	5,850.00
Fort Plain, N. Y., Water Co.	5,000.00	5,250.00
Chippewa Falls, Wis., Water-w'ks Co	10,000.00	10,000.00
Xenia, Ohio, Water Co.	2,000.00	2,000.00
Total par and market values ...	\$37,000.00	\$38,100.00
Cash deposited in N. H. National Bank, Portsmouth, N. H. ...		3,299.26
Interest due and accrued		439.45
Gross premiums in course of collection		1,938.92
Gross assets		\$65,010.13

II. LIABILITIES.

Losses reported, but not adjusted	\$635.00
Net amount of unpaid losses	\$635.00
Unearned premiums taken at 50 per cent of gross premiums	5,896.52
Commissions and brokerage	276.17
Return premiums, \$45.51; re-insurance, \$99.25	144.76
Gross liabilities, except capital and surplus	\$6,952.45

Paid-up capital.....	\$50,000.00	
Surplus over capital	8,057.68	
	<hr/>	
Surplus as regards policy holders.....		\$58,057.68
		<hr/>
Total liabilities, including capital and surplus.....		\$65,010.13
		<hr/> <hr/>

III. INCOME.

Cash received for gross premiums.....	\$13,025.62	
Deduct re-insurance and return premiums	1,922.15	
	<hr/>	
Net cash received for premiums.....		\$11,103.47
Received for interest on mortgages.....		1,192.24
Interest and dividends from all other sources.....		2,297.54
		<hr/>
Gross cash income.....		\$14,593.25

IV. EXPENDITURES.

Net amount paid for losses during the year.....	\$1,549.59	
Commissions and brokerage.....	1,555.37	
Salaries and fees of officers and employees.....	200.00	
State and local taxes.	500.00	
Office and incidental expenses.....	138.37	
	<hr/>	
Gross cash expenditures.....		\$3,943.33
		<hr/> <hr/>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$272,278.00	\$3,672.59
Risks written during the year.	1,035,195.00	13,052.79
	<hr/>	<hr/>
Total	\$1,307,473.00	16,725.38
Risks terminated during the year	271,014.00	3,740.86
	<hr/>	<hr/>
In force at end of the year.....	\$1,036,459.00	\$12,984.52
Deduct amount re-insured	80,065.00	1,191.47
	<hr/>	<hr/>
Net amount in force December 31, 1888..	\$956,394.00	\$11,793.05
Premiums received from organization to date.....		\$16,769.92
Losses paid from organization to date		1,549.59
Losses incurred during the year.....		1,372.09
Company's stock owned by the directors, at par value.....		32,000.00

NEW HAMPSHIRE BUSINESS.

Risks written during the year.....	\$1,035,195.00
Gross premiums received thereon.....	13,052.79
Losses paid during the year.....	1,549.59
Losses incurred during the year.....	1,372.09

AGENTS.

E. P. Richardson,	Manchester.
A. J. Cass,	Tilton.
A. S. Parshley,	Rochester.
Morrill & Danforth,	Concord.
George B. Prescott,	Dover.
McKean & Andrews,	Nashua.
John Sise,	Portsmouth.
G. M. Stevens & Son,	Lancaster.
Melcher & Prescott,	Laconia.
G. H. Aldrich & Son,	Keene.
F. M. Hughes,	Ashland.
Fred W. Cheney,	Newport.

R. N. Chamberlin,	Berlin Falls.
Leach & Barnard,	Franklin.
Crawford, Tolles & Co.,	Great Falls.
Crawford, Tolles & Co.,	Farmington.
Hlsley & Moore,	Portsmouth.
C. O. Eastman,	Claremont.
A. J. Barrett,	Littleton.
Dearborn & Chase,	Bristol.
Weston & Shute,	Exeter.
Frank T. Currier,	Enfield.
John Pender,	Portsmouth.

AGGREGATE.

CAPITAL STOCK.

Cash capital.....	\$1,365,000.00
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ASSETS.

Gross assets.....	\$3,019,513.07
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LIABILITIES.

Gross liabilities.....	\$1,239,014.80
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INCOME.

Cash received for premiums (net).....	\$1,601,045.17
for interest and dividends from all sources.....	135,370.95
from all other sources.....	190.38
Gross income.....	\$1,736,606.50

EXPENDITURES.

Cash paid for losses.....	\$870,703.88
for dividends to stockholders.....	45,000.00
for brokerage and commissions.....	306,450.47
for salaries and pay of officers and employees...	72,398.64
for state and local taxes.....	34,479.04
for office, agency, and incidental expenses.....	87,435.49
Gross expenditures.....	\$1,416,467.52

MISCELLANEOUS.

Risks written during the year.....	\$150,715,061.21
Premiums thereon.....	1,943,936.05
Risks terminated during the year.....	117,991,146.85
Risks outstanding at end of year.....	152,185,856.87
Losses incurred.....	895,991.24

ACCIDENT AND GUARANTY COMPANIES

OF OTHER STATES AND COUNTRIES DOING BUSINESS IN
NEW HAMPSHIRE.

ABSTRACTS OF ANNUAL REPORTS, WITH DETAILED STATEMENTS
OF ASSETS AND LIABILITIES, AND NAMES OF
AGENTS, FOR THE YEAR ENDING
DECEMBER 31, 1888.

UNITED STATES BRANCH ACCIDENT INSURANCE
COMPANY OF NORTH AMERICA, OF
MONTREAL, CANADA.

[Incorporated June, 1872.]

Commenced business in U. S., August, 1881.]

ALEXANDER T. GALT, *President.*EDWARD RAWLINGS, *Secretary.*

Principal office, Montreal, Canada.

I. ASSETS IN THE UNITED STATES.

<i>BONDS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
United States	\$100,000.00	\$108,000.00
Market value of bonds.....		\$108,000.00
Cash deposited with John Paton & Co., New York City		1,765.40
Interest due and accrued.....		375.00
Gross premiums in course of collection.....		5,653.78
Bills receivable, secured.....		1,000.00
Bills receivable, unsecured.....	\$3,088.03	
Furniture and fixtures.....	588.30	
Gross assets in the United States.....		\$116,794.18

II. LIABILITIES IN THE UNITED STATES.

Gross amount of unpaid losses.....	\$7,500.00
Unearned premiums taken at 50 per cent of gross premiums	9,029.67
Commissions and brokerage.....	1,413.44
Gross liabilities in the U. S., except capital and surplus	\$17,943.11
Paid-up capital.....	\$100,000.00
Impairment of capital.....	1,148.93
Surplus as regards policy holders.....	\$98,851.07
Total liabilities, including capital and surplus.....	\$116,794.18

III. INCOME.

Cash received for gross premiums.....	\$37,654.40	
Deduct re-insurance and return premiums.....	25,176.27	
Net cash received for premiums.....		\$12,478.13
Interest and dividends from all sources.....		4,500.00
Income from all other sources, viz.: Re-insurance.....		3,232.44
Gross cash income in United States.....		<u>\$20,210.57</u>

IV. EXPENDITURES.

Gross amount paid for losses	\$30,163.77	
Deduct salvage and re-insurance.....	3,730.79	
Net amount paid for losses during the year.....		\$26,432.98
Commissions and brokerage.....		8,454.79
Salaries and fees of officers and employees.....		10,048.60
State and local taxes....		2,162.62
Rents.....		219.56
All other payments and expenditures, viz.:		
Advertising, \$1,167.52; postage, \$916.84; printing and stationery, \$1,130.80; office charges, \$158.03; law charges, \$1,413.31; profit and loss, \$34,703.92.....		39,490.42
Gross cash expenditures.....		<u><u>\$86,808.97</u></u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Accident risks in force January 1, 1888.....	\$6,639,750.00	\$38,102.17
Risks written during the year.....	5,852,250.00	38,822.22
Total	<u>\$12,492,000.00</u>	<u>\$76,924.39</u>
Risks terminated during the year.....	8,413,900.00	53,804.09
In force at end of the year.....	\$4,078,100.00	\$23,120.30
Deduct amount re-insured.....	662,600.00	5,060.97
Net amount in force Dec. 31, 1888.....	<u>\$3,415,500.00</u>	<u>\$18,059.33</u>
Premiums received in U. S. from organization to date.....		\$1,484,086.55
Losses paid in U. S. from organization to date.....		700,733.13
Losses incurred in U. S. during the year 1888.....		18,507.12
Deposited in New York for security of U. S. policy holders.		100,000.00

NEW HAMPSHIRE BUSINESS.

Accident risks written during the year.....	\$156,500.00
Gross premiums received thereon.....	722.16
Losses paid during the year.....	211.16
Accident losses incurred during the year.....	211.16

AGENTS.

E. R. Jameson,	Antrim.	Arthur Howison,	Milford.
S. Richardson,	Claremont.	Burleigh & Co.,	Franklin Falls.
John G. Lane,	Manchester.	R. B. Hatch,	Peterborough.
R. B. Merrill,	Littleton.	Alonzo Elliott,	Manchester.
E. J. Sisk,	Dover.	F. S. Pierce,	East Jaffrey.
S. W. Holman,	Hillsboro' Br.	A. S. Parshley,	Rochester.
G. R. Brown,	Newport.	B. F. Foster,	Milford.
E. J. Copp,	Nashua.	S. A. Dow,	Concord.
A. J. Tuck,	Nashua.	White & Knight,	Peterborough.
D. W. Goodnow,	Keene.	T. W. Kendrick,	Winchester.
T. W. Sabin,	Hinsdale.	R. L. Ball,	Walpole.
H. W. Bond,	Charlestown.	E. A. Shute,	Exeter.
James C. Watson,	Wolfeborough.	James C. Butler,	Portsmouth.
J. C. Trickey,	Whitefield.	Melcher & Prescott,	Laconia.
C. H. Pitman,	Farmington.	George L. Dearborn,	Newmarket.
L. H. Eastman,	Conway.	Dexter Chase,	Lancaster.
F. M. George,	Plymouth.	Dearborn & Chase,	Bristol.
Frank D. Currier,	Canaan.	E. B. Huse,	Enfield.
E. N. Forbes,	Winchester.		

AMERICAN STEAM BOILER INSURANCE
COMPANY.

[Incorporated November 5, 1883. Commenced business November 7, 1883.]

WILLIAM K. LOTHROP, *President*. VINCENT R. SCHENCK, *Secretary*.

Principal office, New York City.

CASH CAPITAL, \$500,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$48,500.00
Interest accrued thereon.....	1,234.14
Value of lands mortgaged.....	\$69,650.00
Value of buildings thereon.....	39,350.00
Insurance held as collateral.....	39,350.00

SCHEDULE OF STOCKS AND BONDS.

STOCKS.

	<i>Par Value.</i>	<i>Market Value.</i>
Knickerbocker Trust Co., N. Y. City.....	\$7,000.00	\$10,500.00
Holland Trust Co., N. Y. City.....	10,000.00	21,000.00
Chatham National Bank, N. Y. City	8,050.00	22,137.00
North River Bank, N. Y. City.....	12,000.00	18,000.00
American Exchange National Bank, N. Y. City..	4,000.00	5,820.00
National Broadway Bank, New York City.....	6,825.00	19,588.00
Leather Manufacturers' Nat'l Bank, N. Y. City...	3,300.00	7,755.00
St. Nicholas Bank, N. Y. City.....	5,900.00	7,375.00
Commercial National Bank, N. Y. City.....	10,000.00	11,300.00
Third National Bank, N. Y. City.....	20,000.00	23,000.00
Brooklyn Cross-Town R. R. Co.....	6,250.00	10,600.00

BONDS.

United States Government	390,000.00	466,125.00
Erie Consolidated Gold	10,000.00	13,900.00
Third Avenue R. R., N. Y. City.....	50,000.00	54,000.00
Northern Pacific R. R.....	10,000.00	11,900.00
Chicago & Southwestern R. R.....	15,000.00	18,900.00
St. Paul, Minneapolis & Manitoba R. R.....	10,000.00	11,800.00
N. Y., Ontario & Western R. R.....	10,000.00	11,300.00
N. Y. Central & Hudson River R. R.....	10,000.00	11,500.00
Duluth & Manitoba R. R.....	10,000.00	10,362.00
Union Pacific R. R.....	10,000.00	11,600.00
Central Pacific R. R.....	10,000.00	11,500.00
N. Y., Lackawanna & Western R. R.....	2,000.00	2,230.00
Morris & Essex R. R.....	5,000.00	6,450.00
Long Dock, N. Y.....	10,000.00	12,000.00
Atlantic Avenue R. R., Brooklyn.....	10,000.00	10,500.00
Lehigh & Wilkesbarre Coal Co	10,000.00	11,600.00
Buffalo & Erie R. R....	10,000.00	12,300.00
City of Bayonne Water-works.....	5,000.00	5,500.00
Holston Salt & Plaster Co.....	25,000.00	30,000.00
Chicago, Rock Island & Pacific R. R.....	10,000.00	10,800.00
Canada Southern R. R.....	10,000.00	11,000.00
Central R. R. of New Jersey.....	20,000.00	22,800.00
St. Louis, Arkansas & Texas R. R.	5,000.00	4,900.00
Missouri Pacific R. R.....	10,000.00	11,000.00
Chicago, Burlington & Quincy R. R.....	10,000.00	10,850.00
Philadelphia & Reading R. R.....	5,000.00	4,525.00
Albany & Susquehanna R. R.....	25,000.00	31,000.00
Second Avenue R. R., N. Y. City.....	10,000.00	10,600.00
St. Louis, Iron Mt., Cairo, Ark. & Texas R. R....	5,000.00	5,250.00
Danville City, Va.....	25,000.00	26,200.00

Total values.....	\$840,325.00	\$1,029,467.00
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Market value of stocks and bonds.....	\$1,029,467.00
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COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>
Jewel Milling Co., Brooklyn, stock	\$7,500.00	\$2,000.00
Edison Electric Light Co., of N. Y., stock.....	1,800.00	1,000.00
Clinton Bank, New York, stock.....	5,500.00	4,500.00
Exchange Fire Ins. Co., of N. Y., stock.....	30,650.00 }	25,000.00
Merchants' Fire Ins. Co., of New York, stock....	1,900.00 }	
Western National Bank, of N. Y., stock.....	9,500.00 }	10,080.00
Brooklyn Bank stock.....	1,387.00 }	
Total amounts	<u>\$58,237.00</u>	<u>\$42,580.00</u>
Loans on collateral securities.....		\$42,580.00
Cash in the company's office.....		772.00
Cash deposited in banks.....		55,234.69
Interest due and accrued.....		1,198.34
Gross premiums in course of collection.....		188,827.03
Gross assets.....		<u>\$1,367,813.20</u>

II. LIABILITIES.

Unearned premiums on outstanding risks.....	\$485,292.36
Due and accrued for salaries, rent, and incidental expenses..	8,640.00
Gross liabilities, except capital and surplus.....	<u>\$493,932.36</u>
Paid-up capital.....	\$500,000.00
Surplus over capital.....	373,880.84
Surplus as regards policy holders.....	<u>873,880.84</u>
Total liabilities, including capital and surplus.....	<u><u>\$1,367,813.20</u></u>

III. INCOME.

Cash received for gross premiums and inspections.....	\$420,834.13
Deduct re-insurance and return premiums.....	<u>15,759.24</u>
Net cash received for premiums and inspections.....	\$405,074.89
Received for interest on mortgages.....	1,150.00
Interest and dividends from all other sources.....	<u>51,378.48</u>
Gross cash income.....	<u>\$457,603.37</u>

IV. EXPENDITURES.

Gross amount paid for steam-boiler losses during the year...	\$33,212.91
Dividends paid stockholders.....	60,000.00
Commissions and brokerage.....	97,669.58
Salaries and fees of officers and employees.....	25,367.68
State and local taxes.....	10,649.87
Office and incidental expenses..	26,858.75
Inspectors' salaries and expenses.....	126,340.16
Gross cash expenditures.....	<u>\$380,098.95</u>

V. GENERAL ITEMS.

	<i>Steam-Boiler Risks.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$41,422,854.00	\$536,480.57
Risks written during the year.....	49,358,839.00	494,838.07
Total	<u>\$90,781,693.00</u>	<u>\$1,031,318.64</u>
Risks terminated during the year.....	27,598,111.00	298,330.22
Net amount in force Dec. 31, 1888.....	<u>\$63,183,582.00</u>	<u>\$732,988.42</u>
Premiums and inspections received from organization to date		1,186,172.98
Losses paid from organization to date.....		88,002.28
Losses incurred during the year 1888.....		33,212.91
Cash dividends declared since commencing business.....		104,000.00
Company's stock owned by the directors, at par value.....		245,000.00
Dividends declared during the year 1888.....		60,000.00

NEW HAMPSHIRE BUSINESS.

Steam-boiler risks written during the year.....	\$370,500.00
Gross premiums received thereon	2,512.01
Received for inspections.....	1,076.57
No losses paid or incurred during the year.	

AGENTS.

A. B. SEELEY, Boston, Mass., General Agent.
 E. A. LORD, Concord, N. H., Special Agent.
 J. H. LEEDHAM, Boston, Mass., Solicitor.

AMERICAN SURETY INSURANCE COMPANY.

[Incorporated April 14, 1884. Commenced business April 15, 1884.]

WILLIAM A. WHELOCK, *President.*F. F. NUGENT, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$1,000,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens)	\$36,000.00
Interest accrued thereon.	1,000.00
Value of lands mortgaged.....	\$24,000.00
Value of buildings thereon.....	36,000.00
Insurance held as collateral	36,000.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value. Market Value.</i>	
New York City Revenue stock.....	\$100,000.00	\$100,000.00
N. Y. Central & Hudson River R. R. stock.....	100,000.00	108,000.00
<i>BONDS.</i>		
United States bonds.....	710,000.00	905,750.00
Total values.....	\$910,000.00	\$1,113,750.00
Market value of stocks and bonds.....		1,113,750.00

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value. Loaned Thereon.</i>	
National Park Bank (N. Y.) stock.....	\$8,750.00	\$6,000.00
Loans on collateral securities.....		6,000.00
Cash in the company's office.....		1,117.12
Cash deposited in Bank of North America, N. Y.....		130,754.38
Interest due and accrued.....		6,566.36
Gross premiums in course of collection.....		40,790.04
Bills receivable, taken for salvages.....	\$2,568.94	
Gross assets.....		\$1,335,977.90

II. LIABILITIES.

Claims reported, but not adjusted.....	\$13,417.84	
resisted, including interest and expenses	8,731.08	
		<hr/>
Gross amount of unpaid claims for losses.....		\$22,148.92
Unearned premiums taken at 50 per cent of gross premiums		178,206.68
Commissions and brokerage.....		1,312.51
		<hr/>
Gross liabilities, except capital and surplus.....		\$201,668.11
Paid-up capital.....	\$1,000,000.00	
Surplus over capital.....	134,309.79	
		<hr/>
Surplus as regards policy holders.....		1,134,309.79
		<hr/>
Total liabilities, including capital and surplus.....		<u>\$1,335,977.90</u>

III. INCOME.

Cash received for gross premiums.....	\$352,735.15	
Deduct re-insurance and return premiums.....	11,198.52	
		<hr/>
Net cash received for premiums.....		\$341,536.63
Interest and dividends from all sources.....		34,067.87
		<hr/>
Gross cash income.....		\$375,604.50

IV. EXPENDITURES.

Gross amount paid for losses.....	\$103,829.39	
Deduct salvage and re-insurance... ..	25,285.62	
		<hr/>
Net amount paid for losses during the year.....		\$78,543.77
Dividends paid stockholders.....		60,000.00
Commissions and brokerage		24,707.88
Salaries and fees of officers and employees.....		63,136.14
State and local taxes		3,867.42
Rents and general expenses.....		24,258.25
All other payments and expenditures, viz.:		
Printing, stationery, and advertising, \$14,549.12; postage,		
telegrams, and expressage, \$7,488.23; law expenses,		
\$7,031.22; furniture and fixtures, \$4,085.46.....		33,154.03
		<hr/>
Gross cash expenditures.....		<u>\$287,667.49</u>

V. GENERAL ITEMS.

	<i>Surety Risks.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$41,013,864.00	\$256,823.48
Risks written during the year.....	57,056,135.00	363,195.23
Total	\$98,069,999.00	\$620,018.71
Risks terminated during the year.....	43,389,636.00	263,605.35
Net amount in force December 31, 1888..	\$54,680,363.00	\$356,413.36
Premiums received from organization to date (net).....		952,901.18
Losses paid from organization to date.....		205,975.42
Losses incurred during the year 1888.....		102,773.74
Cash dividends declared since commencing business.....		90,000.00
Company's stock owned by the trustees, at par value.....		443,750.00

NEW HAMPSHIRE BUSINESS.

Surety risks written during the year.....	\$90,000.00
Gross premiums received thereon.....	634.38
No losses incurred or paid during the year.	

R. P. STANIELS, Concord, Agent.

UNITED STATES BRANCH OF THE EMPLOYERS'
LIABILITY ASSURANCE CORPORATION
(LIMITED), LONDON, ENGLAND.

[Incorporated October 25, 1880. Commenced business April, 1881.]

CLAUD J. HAMILTON, *President*.

S. STANLEY BROWN, *Secretary*.

Endicott & Macomber, Attorneys, Boston, Mass.

CASH CAPITAL, \$100,000.00.

I. ASSETS.

SCHEDULE OF BONDS.

	<i>Par Value.</i>	<i>Market Value.</i>
United States.....	\$100,000.00	\$108,500.00
Baltimore & Ohio R. R.....	26,000.00	28,015.00
Chicago, Santa Fe & California R. R.....	25,000.00	25,000.00
N. Y. Central & Hudson River R. R.....	20,000.00	26,400.00
Fitchburg R. R.....	10,000.00	10,500.00
Old Colony R. R.....	5,000.00	5,125.00
Total values.....	<u>\$186,000.00</u>	<u>\$203,540.00</u>
Market value of bonds owned.....		\$203,540.00
Cash in the company's office.....		19.20
Cash deposited in Massachusetts National Bank, Boston.....		59,452.60
Gross premiums in course of collection.....		<u>71,207.30</u>
Gross assets.....		<u>\$334,219.10</u>

II. LIABILITIES.

Net amount of unpaid losses.....	\$35,765.00
Unearned premiums taken at 50 per cent of gross premiums	174,261.60
Gross liabilities, except capital and surplus.....	<u>\$210,026.60</u>
Paid-up capital.....	\$100,000.00
Surplus over capital.....	<u>24,192.50</u>
Surplus as regards policy holders.....	<u>124,192.50</u>
Total liabilities, including capital and surplus.....	<u><u>\$334,219.10</u></u>

III. INCOME.

Net cash received for premiums.....	\$357,425.52
Received for interest on mortgages.....	7,925.00
Elevator inspections.....	62.15
Gross cash income.....	<u>\$365,412.67</u>

IV. EXPENDITURES.

Amount paid for losses during the year.....	\$104,802.68
Commissions and brokerage.....	82,089.57
Salaries and fees of officers and employees.....	15,651.80
State and local taxes.....	5,208.91
All other payments and expenditures.....	48,418.23
Gross cash expenditures.....	<u>\$256,171.19</u>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$21,289,061.00	\$198,016.09
Risks written during the year.....	62,282,803.00	500,006.82
Total.....	<u>\$83,571,864.00</u>	<u>\$698,022.91</u>
Risks terminated during the year.....	36,814,334.00	349,499.70
Net amount in force December 31, 1888..	<u>\$46,757,530.00</u>	<u>\$348,523.21</u>
Premiums received from organization to date.....		574,946.62
Losses paid from organization to date.....		137,776.62
Losses incurred during the year 1888.....		104,802.68

NEW HAMPSHIRE BUSINESS.

Accident risks written during the year.....	\$1,419,350.00
Gross premiums received thereon.....	10,073.85
Losses incurred and paid during the year.....	5,272.13

AGENTS.

John Killoren,	Dover.	W. S. Parks,	Boston, Mass.
George A. Bailey,	Manchester.	John A. Fox,	Boston, Mass.
John Rolley,	Littleton.	Fred R. Felch,	Derry Depot.
R. W. Shapleigh,	Dover.	A. Elliott & Co.,	Manchester.
George E. Morrison,	Dover.	Charles E. Moody,	Concord.
John Pender,	Portsmouth.	John D. Carlton,	Conway.
Francis L. Ide,	Claremont.		

FIDELITY AND CASUALTY INSURANCE COMPANY.

[Incorporated March 20, 1876. Commenced business May 1, 1876.]

WILLIAM M. RICHARDS, *President*.ROBERT J. HILLAS, *Secretary*.

Principal office, New York City.

CASH CAPITAL, \$250,000.00.

I. ASSETS.

Cash value of real estate, less encumbrances thereon..... \$11,000.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
N. Y., Lackawanna & Western R. R. Co.....	\$25,000.00	\$27,625.00

<i>BONDS.</i>		
United States bonds, 4½ per cent	195,000.00	211,575.00
United States bonds, 4 per cent.....	15,000.00	19,050.00
P., C. & Toledo R. R	25,000.00	27,750.00
N. Y., West Shore & Buffalo R. R.....	20,000.00	20,975.00
Brooklyn & Montauk R. R.....	25,000.00	27,875.00
Lake Erie & Western R. R.....	25,000.00	27,125.00
Chicago, R. I. & Pacific R. R....	25,000.00	26,781.25
Central R. R. of New Jersey.....	25,000.00	27,125.00
Cin., Ind., St. Louis & Chicago R. R.....	25,000.00	23,500.00

Total values.....	<u>\$405,000.00</u>	<u>\$439,381.25</u>
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Market value of stocks and bonds..... 439,381.25

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Loaned Thereon.</i>
Canada Southern Railway stock	\$26,250.00	\$50,000.00
Chicago, Milwaukee & St. Paul R. R. stock.	3,848.00	
N. Y. Central & Hudson River R. R. stock..	12,420.00	
Western Union Telegraph Co. stock	8,350.00	
Chicago, Rock Island & Pacific R. R. stock	9,750.00	
Texas & Pacific R. R. bonds, 5s.	5,400.00	50,000.00
Midland R. R. of N. J. bonds, 6s.....	2,305.00	
N. Y., Chicago & St. Louis R. R. bonds, 4s.	4,587.00	
Philadelphia & Reading R. R. bonds, 4s....	4,512.00	
Union Pacific R. R. bonds, 6s.	6,870.00	
Long Dock mortgage bonds, 7s, guar.....	2,210.00	
Del., Lack. & Western Railway stock.....	14,362.00	
Chicago, Rock Island & Pacific R. R. stock.	9,750.00	
Western Union Telegraph Co. stock.....	8,350.00	
East Tenn., Va. & Ga. R. R. gold bonds, 5s.	4,081.00	
Total values.....	<u>\$123,045.00</u>	<u>\$100,000.00</u>

Loans on collateral securities.....		\$100,000.00
Cash in the company's office.....		12,056.07
Cash deposited in banks:		
Chemical National Bank.....	\$7,179.44	
National Park Bank.....	13,610.45	
Mercantile Trust Co.....	25,000.00	
Brooklyn Trust Co.....	10,000.00	
		<hr/> 55,789.89
Interest due and accrued.....		2,422.96
Gross premiums in course of collection.....	{	
	Fidelity.....	\$14,296.83
	Plate Glass...	19,573.57
	Steam Boiler..	11,706.45
	Accident.....	77,679.80
		<hr/> 123,256.65
Miscellaneous securities.....		4,500.00
Plate glass on hand, cash value.....		7,800.00
Reserve on re-insurance.....		3,277.19
Ledger balances.....	\$6,377.01	
Bills receivable.....	3,777.19	
Other property.....	4,912.00	
		<hr/> \$15,066.20
Total.....		
Gross assets.....		<hr/> \$759,484.01

II. LIABILITIES.

Losses reported, but not adjusted.....	\$44,951.91	
resisted, including interest and expenses.....	4,126.07	
		<hr/>
Gross amount of unpaid losses.....		\$49,077.98
Unearned premiums on out-standing risks.....	{	
	Fidelity.....	\$80,798.27
	Accident.....	163,292.82
	Plate Glass...	75,591.36
	Steam Boiler..	54,857.15
		<hr/> 374,539.60
Due and accrued for salaries, rent, and incidental expenses		3,775.36
Commissions and brokerage.....		45,067.88
		<hr/>
Gross liabilities, except capital and surplus.....		\$472,460.82
Paid-up capital.....	\$250,000.00	
Surplus over capital.....	37,023.19	
		<hr/>
Surplus as regards policy holders.....		287,023.19
		<hr/>
Total liabilities, including capital and surplus.....		<hr/> \$759,484.01

III. INCOME.

Premiums received for fidelity risks.....	\$170,232.90	
Re-insurance and return premiums.....	15,662.39	
Net cash received.....		\$154,570.51
Premiums received for accident risks.....	\$318,893.07	
Re-insurance and return premiums	4,618.23	
Net cash received.....		314,274.84
Premiums received for plate-glass risks.....	\$153,387.82	
Re-insurance and return premiums.....	6,666.89	
Net cash received.....		146,720.93
Premiums received for boiler risks.....	\$64,815.67	
Re-insurance and return premiums.....	7,002.83	
Net cash received.		57,812.84
Total cash premiums received.....		\$673,379.12
Interest and dividends from all sources.....		20,801.16
Income from all other sources, viz., rents.....		252.00
Gross cash income.....		\$694,432.28

IV. EXPENDITURES.

Paid for fidelity losses.....	\$58,250.83	
Salvage and re-insurance.....	34,777.62	
Net amount paid.....		\$23,473.21
Paid for accident losses.....	\$141,978.11	
Salvage and re-insurance.....	1,594.99	
Net amount paid.....		140,383.12
Paid for plate-glass losses.....	\$64,166.39	
Salvage and re-insurance.....	4,150.40	
Net amount paid.....		60,015.99
Paid for boiler losses.....	\$13,894.11	
Salvage and re-insurance.....	6,517.00	
Net amount paid		7,377.41
Total net amount paid for losses.....		\$231,249.73
Dividends paid stockholders.....		10,000.00
Commissions and brokerage.....		173,428.21
Salaries and fees of officers and employees.....		69,697.74
State and local taxes.....		10,837.44
Office and incidental expenses.....		104,119.54
Profit and loss account.....		5,164.21
Gross cash expenditures.....		\$604,496.87

V. GENERAL ITEMS.

<i>FIDELITY.</i>	<i>Amount.</i>	<i>Premiums.</i>
In force January 1, 1888	\$19,724,753.91	\$142,330.13
Written or renewed during the year.....	31,609,358.98	202,425.45
Total	\$51,334,112.89	\$344,755.58
Deduct expirations and cancellations.....	26,366,674.28	183,159.04
In force December 31, 1888.....	\$24,967,438.61	\$161,596.54
<i>ACCIDENT.</i>		
In force January 1, 1888	\$42,164,228.25	\$270,222.92
Written or renewed during the year.....	67,190,265.00	433,070.73
Total	\$109,354,493.25	\$703,293.65
Deduct expirations and cancellations.....	58,508,618.25	376,708.01
In force December 31, 1888.....	\$50,845,875.00	\$326,585.64
<i>PLATE GLASS.</i>		
In force January 1, 1888	\$4,367,393.89	\$130,508.17
Written or renewed during the year.....	5,941,797.27	174,224.35
Total	\$10,309,191.16	\$304,732.52
Deduct expirations and cancellations.....	5,048,880.30	153,549.81
In force December 31, 1888.....	\$5,260,310.86	\$151,182.71
<i>STEAM BOILER.</i>		
In force January 1, 1888	\$4,538,734.00	\$60,835.69
Written or renewed during the year.....	10,297,083.00	81,575.90
Total	\$14,835,817.00	\$142,411.59
Deduct expirations and cancellations.....	4,278,898.29	46,726.67
In force December 31, 1888.....	\$10,556,918.71	\$95,684.92
Aggregate amount.....	\$91,630,543.18	\$735,049.81
Premiums received from organization to date.....		3,688,904.54
Losses paid from organization to date.....		1,412,346.59
Losses incurred during the year 1888.....		231,249.73
Cash dividends declared since commencing business.....		120,000.00
Company's stock owned by the directors, at par value.....		63,900.00
Dividends declared during the year 1888 (4 per cent).....		10,000.00

NEW HAMPSHIRE BUSINESS.

	<i>Amount at Risk.</i>	<i>Premiums Received.</i>	<i>Losses Paid.</i>	<i>Losses Incurred.</i>
Fidelity.....	\$48,000.00	\$267.50		
Accident.....	316,500.00	1,863.58	\$617.12	\$617.12
Plate glass.....	452.40	13.57		
Aggregate.....	\$364,952.40	\$2,144.65	\$617.12	\$617.12

AGENTS.

E. M. Abbott,
E. J. Temple,
James C. Trickey,
J. C. Farrell, Jr.,
John T. Green,

Berlin Mills.
Hinsdale.
Whitefield.
Claremont.
Dover.

Dewey & Day.
Hillsley & Moore,
W. G. Chase,
S. Richardson,

Lebanon.
Portsmouth.
Manchester.
Claremont.

UNITED STATES BRANCH OF THE GUARANTEE
COMPANY OF NORTH AMERICA, MONTREAL,
CANADA.

[Incorporated August 2, 1851. Commenced business April, 1878.]

ALEX. T. GALT, *President.*

ROBERT KERR, *Accountant.*

Principal office, Montreal, Canada.

CASH CAPITAL, \$304,600.00.

I. ASSETS.

Cash value of real estate, less encumbrances thereon.....	\$2,227.51
Loans on mortgages of real estate (first liens)	30,356.53
Loan on paid-up life policy.....	\$400.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Montreal Corporation	\$60,200.00	\$65,771.00
Dominion of Canada.....	2,399.67	2,399.67

<i>BONDS.</i>		<i>Par Value.</i>	<i>Market Value.</i>
Montreal Corporation.....	20,000.00	20,827.50	
Montreal Harbor.....	71,500.00	81,442.50	
Montreal Warehousing.....	6,267.69	6,267.69	
Victoria, B. C., Water-works.....	10,000.00	12,300.00	
Lake Champlain & St. Lawrence Jet. Ry.....	5,000.00	5,000.00	
Canada Central Ry.....	9,733.34	10,901.34	
Province of Quebec.....	1,000.00	1,085.00	
City of Toronto..	10,000.00	11,650.00	
Canada Southern Ry.....	25,000.00	23,375.00	
U. S. Government.....	214,000.00	231,120.00	
City of Richmond, Va.....	1,000.00	1,220.00	
Total values.....	<u>\$436,100.70</u>	<u>\$473,359.70</u>	
Market value of stocks and bonds.....			\$473,359.70
Cash in the company's office.....			897.68
Cash deposited in banks:			
In Montreal.....	\$43,910.43		
In United States.....	40,748.20		
			<u>84,658.64</u>
Interest due and accrued.....			4,571.40
Gross premiums in course of collection.....			20,113.27
Furniture and safes.....	\$4,889.58		
			<u>\$616,184.73</u>
Gross assets.....			\$616,184.73

II. LIABILITIES.

Gross amount of unpaid losses (unadjusted).....	\$24,718.54
Unearned premiums taken at 50 per cent of gross premiums	111,339.78
Due and accrued for salaries, rent, and incidental expenses..	10,000.00
	<u>\$146,058.32</u>
Gross liabilities, except capital and surplus.....	\$146,058.32
Paid-up capital.....	\$304,600.00
Surplus over capital.....	165,526.41
	<u>470,126.41</u>
Surplus as regards policy holders.....	470,126.41
Total liabilities, including capital and surplus	<u>\$616,184.73</u>

III. INCOME.

Cash received for gross premiums.....	\$264,958.87
Deduct re-insurance and return premiums.....	52,414.80
	<u>\$212,544.07</u>
Net cash received for premiums.	\$212,544.07
Interest and dividends from all sources.....	22,660.56

Income from all other sources, viz.:

Claims recovered.....	\$7,178.87
Calls on capital, \$4,600.00; balance of deposit returned, \$125.00.....	\$4,725.00
Gross cash income.....	\$242,383.50

IV. EXPENDITURES.

Gross amount paid for losses.....	\$70,148.93
Deduct re-insurance.....	376.94
Net amount paid for losses during the year.....	\$69,771.99
Dividends paid stockholders.....	18,073.09
Commissions and brokerage.....	4,065.88
Salaries and fees of officers and employees.....	46,866.57
State and local taxes.....	4,380.77
Rents and taxes.....	8,075.73
Paid for furniture.....	246.70
Inspection and revision.....	15,178.90
All other payments and expenditures, viz.:	
Advertising, \$4,681.58; printing and stationery, \$5,051.62; law charges, \$1,849.64; office charges, postage, and tele- grams, \$11,001.43.....	22,584.27
Gross cash expenditures.....	\$189,243.90

V. GENERAL ITEMS.

	<i>Guarantee Risks.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$29,118,741.00	\$217,857.65
Risks written during the year.....	45,871,939.00	312,548.94
Total.....	\$74,990,680.00	\$530,406.59
Risks terminated during the year.....	42,636,214.00	296,450.99
In force at end of the year.....	\$32,354,466.00	\$233,955.60
Deduct amount re-insured.....	1,616,708.00	11,276.03
Net amount in force December 31, 1888..	\$30,737,758.00	\$222,679.57
Premiums received from organization to date.....		1,733,115.42
Losses paid from organization to date.....		610,895.53
Losses incurred during the year 1888.....		152,878.27
Cash dividends declared since commencing business.....		72,667.83
Company's stock owned by the directors, at par value.....		118,340.00
Amount deposited in U. S. for security of all policy holders.		232,340.00

NEW HAMPSHIRE BUSINESS.

Guarantee risks written during the year.....	\$74,700.00
Gross premiums received thereon.....	526.50
No losses incurred or paid during the year.	

AGENTS.

(None.)

HARTFORD STEAM BOILER INSPECTION AND
INSURANCE COMPANY.

[Incorporated June, 1866. Commenced business October, 1866.]

J. M. ALLEN, *President.*J. B. PIERCE, *Secretary.*

Principal office, Hartford, Conn.

CASH CAPITAL, \$500,000.00.

I. ASSETS.

Loans on mortgages of real estate (first liens).....	\$411,660.00
Interest due and accrued thereon.....	9,111.26
Value of lands mortgaged.....	\$1,298,945.00
Value of buildings thereon.....	265,180.00
Insurance held as collateral.....	99,980.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
City National Bank, Hartford.....	\$4,000.00	\$3,800.00
Hartford National Bank.....	3,400.00	5,270.00
Security Company, Hartford.....	8,000.00	11,200.00
American National Bank, Hartford.....	5,000.00	6,500.00
Farmers & Mechanics' National Bank, Hartford.....	6,100.00	6,405.00
Ætna National Bank, Hartford.....	2,300.00	2,415.00
New York, New Haven & Hartford R. R. Co.....	10,000.00	24,500.00
Chicago, Burlington & Quincy R. R. Co.....	11,000.00	11,990.00
Chicago, Milwaukee & St. Paul Ry. Co.....	10,000.00	10,500.00
Atchison, Topeka & Santa Fe R. R. Co.....	10,000.00	5,800.00
Chicago, Rock Island & Pacific Ry. Co.....	11,000.00	10,670.00
St. Louis & San Francisco Ry. Co.....	10,000.00	11,400.00
Chicago & Northwestern Ry. Co.....	10,000.00	14,000.00

<i>BONDS.</i>		<i>Par Value.</i>	<i>Market Value.</i>
State of Connecticut.....	\$100,000.00	\$107,500.00	
United States.....	2,000.00	2,500.00	
Wooster, Ohio, City.....	10,000.00	10,500.00	
Atchison, Kansas, City Park.....	15,000.00	15,750.00	
Solomon, Kansas, City.....	5,000.00	5,500.00	
Hutchinson, Kansas, City.....	12,000.00	12,600.00	
Cullison, Kansas, City.....	6,500.00	7,150.00	
Coolidge, Kansas, City.....	10,000.00	11,000.00	
Evansville, Indiana, City.....	10,000.00	11,000.00	
Council Bluffs, Iowa, City.....	10,000.00	11,000.00	
Winfield, Kansas, City.....	10,000.00	10,500.00	
York, Nebraska, City.....	10,000.00	10,500.00	
Abilene City, Kansas, Board of Education.....	12,000.00	12,600.00	
Anthony City, Kansas, Board of Education.....	12,500.00	13,750.00	
Madrid, Iowa, School District.....	4,000.00	4,200.00	
Nebraska School.....	13,555.00	14,202.75	
Kansas School.....	16,435.00	18,383.70	
Minnesota School.....	1,400.00	1,470.00	
Mason & Tazewell District, Illinois.....	13,200.00	14,256.00	
Lake Fork District, Illinois.....	14,010.61	14,711.11	
W. C. Special District, Illinois.....	10,000.00	10,500.00	
Big Slough District, Illinois.....	15,000.00	15,750.00	
Peoria, Illinois, Township.....	5,000.00	5,000.00	
Oxford, Kansas, Township.....	10,000.00	10,500.00	
Oswego, Kansas, Township.....	10,000.00	10,500.00	
Jefferson, Kansas, Township.....	10,000.00	10,500.00	
Reno, Kansas, Township.....	15,000.00	15,750.00	
Dexter, Kansas, Township.....	10,000.00	10,500.00	
Albion, Nebraska, Village.....	6,500.00	7,150.00	
School Creek Precinct, Clay Co., Nebraska.....	5,000.00	5,250.00	
Sutton Precinct, Clay Co., Nebraska.....	5,000.00	5,250.00	
Lewis Precinct, Clay Co., Nebraska.....	8,000.00	8,400.00	
Pawnee County, Kansas.....	11,000.00	11,550.00	
Dickinson County, Kansas.....	15,000.00	15,750.00	
Riley County, Kansas.....	10,000.00	10,500.00	
Lyon County, Iowa.....	10,000.00	10,000.00	
Dayton & Western R. R.....	15,000.00	16,500.00	
St. Johnsbury & Lake Champlain R. R.....	15,000.00	16,500.00	
Mahoning Coal R. R. Co.....	10,000.00	11,000.00	
Cincinnati, Van Wert & Michigan R. R. Co.....	12,000.00	13,200.00	
Total values.....	<u>\$595,900.61</u>	<u>\$652,103.56</u>	
Market value of stocks and bonds.....			\$652,103.56
Cash in the company's office.....			1,245.36
Cash deposited in banks:			
Connecticut River Banking Co.....	\$52,718.69		
Security Company.....	7,541.14		
United States Bank.....	9,480.59		
			<u>69,740.42</u>
Interest due and accrued.....			14,442.32
Net premiums in course of collection.....			116,811.10
Gross assets.....			<u>\$1,275,114.02</u>

II. LIABILITIES.

Gross amount of unpaid losses.....	\$5,844.92	
Unearned premiums on outstanding risks.....	680,245.00	
Due and accrued for salaries, rent, and incidental expenses..	550.00	
Commissions and brokerage.....	1,669.74	
		<hr/>
Gross liabilities, except capital and surplus.....	\$688,309.66	
Paid-up capital.....	\$500,000.00	
Surplus over capital.....	86,804.36	
		<hr/>
Surplus as regards policy holders.....	586,804.36	
		<hr/>
Total liabilities, including capital and surplus.....	\$1,275,114.02	
		<hr/> <hr/>

III. INCOME.

Cash received for gross premiums and inspections.....	\$687,280.31	
Deduct re-insurance and return premiums.....	72,913.31	
		<hr/>
Net cash received for premiums and inspections.....	\$614,367.00	
Received for interest on mortgages.....	25,040.32	
Interest and dividends from all other sources.....	29,582.47	
Income from all other sources, viz.:		
Special mechanical services.....	3,158.18	
		<hr/>
Gross cash income.....	\$672,147.93	

IV. EXPENDITURES.

Gross amount paid for steam-boiler losses during the year..	\$40,811.25	
Dividends paid stockholders.....	50,000.00	
Commissions and brokerage.....	144,235.73	
Salaries and fees of officers and employees.....	22,950.00	
State and local taxes.....	9,867.96	
Inspection expenses....	169,385.17	
All other payments and expenditures, viz.:		
Agency and office expenses, advertising, apparatus, and furniture.....	91,172.92	
		<hr/>
Gross cash expenditures.....	\$528,423.03	
		<hr/> <hr/>

V. GENERAL ITEMS.

	<i>Amount.</i>	<i>Premiums.</i>
Risks in force January 1, 1888.....	\$63,844,675.00	\$780,251.87
Risks written during the year.....	62,211,702.00	708,212.11
Total	\$126,056,377.00	\$1,488,463.98
Risks terminated during the year.....	34,954,234.00	406,337.85
Net amount in force Dec. 31, 1888....	\$91,102,143.00	\$1,082,126.13
Premiums and inspections received from organization to date		4,839,912.72
Losses paid from organization to date.....		351,680.10
Losses incurred during the year 1888.....		44,483.14
Cash dividends declared since commencing business.....		389,750.00
Company's stock owned by the directors, at par value.		132,000.00
Dividends declared during the year 1888.....		50,000.00

NEW HAMPSHIRE BUSINESS.

Steam-boiler risks written during the year.....	\$1,041,000.00
Gross premiums received thereon	7,549.33
Received for inspections.....	3,235.43
No losses incurred or paid during the year.	

AGENTS.

C. E. ROBERTS, Boston, General Agent.

J. S. Blenkinsop,	Boston, Mass.	G. H. Aldrich & Son,	Keene.
William H. Allen,	Boston, Mass.	E. P. Richardson,	Manchester.
Arthur Lillie,	Providence, R. I.	H. A. Frye.	
J. H. Leedham,	Palmer, Mass.	L. Kenerson.	

NEW HAMPSHIRE
(ASSESSMENT)
LIFE INSURANCE COMPANIES.

ABSTRACTS COMPILED FROM THEIR ANNUAL STATEMENTS,
SHOWING THEIR CONDITION ON THE 31ST DAY
OF DECEMBER, 1888, WITH NAMES
AND ADDRESS OF AGENTS.

[Summaries and ratios of these companies may be found among the statistical tables.]

GRANITE STATE MUTUAL AID ASSOCIATION.

[Incorporated August 15, 1883. Commenced business April 3, 1882.]

EDWARD GUSTINE, *President*.EDWARD A. LYMAN, *Secretary*.

Principal office, Keene.

INCOME FOR 1888.

Membership fees, without deductions.....	\$11,756.00
Annual dues, as per contract.....	10,976.25
Assessments: Mortuary, \$107,972.21; expense, \$2,185.40.....	110,157.61
Medical examiners' fees paid by applicants.....	<u>2,022.00</u>
Total paid by members.....	\$134,911.86
Interest.....	<u>242.61</u>
Total income.....	\$135,154.47
Balance of assets on hand December 31, 1887.....	<u>4,182.71</u>
Total net resources	\$139,337.18

DISBURSEMENTS FOR 1888.

Losses and claims.....	\$97,201.36
Advance payments returned to rejected applicants.....	837.00
(Total paid to members.....)	<i>\$98,038.36.</i>
Commissions and fees paid to agents	15,556.89
Salaries and other compensation of officers	3,321.65
Salaries or other compensation of office employees.....	825.00
Medical examiners' fees paid by the association	689.02
Rents, \$620.00; advertising and printing, \$783.68.....	1,403.68
Attorney's fees, stationery, and postage.	<u>2,297.28</u>
(Total expenses of management	<i>\$24,093.52.</i>)
Medical examiners' fees paid by applicants.....	<u>2,022.00</u>
Total disbursements	\$124,153.88
Balance December 31, 1888.....	<u><u>\$15,183.30</u></u>

Invested as follows:

INVESTED ASSETS.

Emergency Fund, deposited as follows:

Cheshire Provident Association, Keene	\$5,630.57
Keene Five-Cents Savings Bank.....	1,715.55
Rochester Loan & Banking Company.....	4,952.83
	<hr/>
Total Emergency Fund	\$12,298.95
Cash deposited in Keene National Bank.....	2,884.35
	<hr/>
Total invested assets, as per balance.....	\$15,183.30

OTHER ASSETS.

Annual dues for the year 1888, accrued but not due.....	\$7,000.00
	<hr/>
Gross assets.....	\$22,183.30
	<hr/>

LIABILITIES.

(None.)

CONTINGENT MORTUARY RESOURCES.

Mortuary assessments called and not yet due...	\$17,600.00
Mortuary assessments not yet called, for losses resisted	9,000.00
	<hr/>
Total due from members.....	\$26,600.00

CONTINGENT MORTUARY LIABILITIES.

Losses reported (6)	\$15,000.00
resisted (2)	9,000.00
	<hr/>
Total contingent mortuary liabilities	\$24,000.00
	<hr/>

EXHIBIT OF CERTIFICATES.

	<i>Number.</i>	<i>Amount.</i>
Certificates in force December 31, 1887.....	3,624	\$10,686,000.00
Certificates written during the year.....	1,011	2,743,000.00
	<hr/>	<hr/>
Total.....	4,635	\$13,429,000.00
Certificates ceased during 1888.....	471	1,355,000.00
	<hr/>	<hr/>
Certificates in force December 31, 1888....	4,164	\$12,074,000.00
	<hr/>	<hr/>

	<i>Number.</i>	<i>Amount.</i>
Losses and claims unpaid December 31, 1887...	8	\$27,900.00
Losses and claims incurred during 1888.....	32	93,301.36
Total.....	40	\$121,201.36
Losses and claims paid during 1888.....	32	97,201.36
Losses and claims unpaid December 31, 1888....	8	\$24,000.00

AGENTS.

WILLIAM A. ROBERTS, Rochester, General Agent.

E. W. Baker,	Antrim.	Roscoe J. Seavey,	Bristol.
Jesse F. Libbey,	Gorham.	A. H. Eastman,	Colebrook.
John B. Handy,	Manchester.	Burton C. Thatcher,	Chesterfield.
F. W. Sawyer,	Milford.	Henry A. Shute,	Exeter.
J. M. Milliken,	Keene.	J. Edward Everett,	Laconia.
W. S. Quimby,	Andover Center.	Sydney E. Cory,	Nashua.
Alfred E. Jaques,	Wilton.	Joseph Russell,	Sunapee.
George W. Burleigh,	Union.	Joseph S. Phillips,	Scytheville.
H. W. Hayward,	Temple.	Charles W. Cass,	Plaistow.
William W. Sloan,	Amherst.	John E. Davis,	Warren.
C. E. Cilley,	Kingston.	Charles H. Dodge,	New Boston.
A. C. Carroll,	Warner.	Joseph R. Rowe,	Brentwood.
D. W. C. Newman,	Hillsboro' Br.	Lewis E. Fogg,	Epping.
Fred L. White,	Bethlehem.	J. P. Whittle,	Weare.
Elbridge W. Fox,	Milton Mills.	Daniel P. Quimby,	Newport.
H. F. Patterson,	Concord.	N. C. Simmons,	Keene.
Amos H. Currier,	Contoocook.	J. A. Hall,	Brookline.
Frank K. Johnson,	Belmont.	H. C. Goodwin,	Dover.
William T. Wallace,	Milton.	D. H. Horne,	Keene.
George F. Berry,	Pittsfield.	W. B. Durgin,	East Andover.
Frank P. Morrison,	Salmon Falls.	George E. Fifield,	So. Newmarket.
Aaron Woodman,	Franklin Falls.	Frank H. Messer,	South Newbury.
Charles W. Talpey,	Farmington.	W. J. Maloy,	Fremont.
Otis F. Sumner,	Goffstown.	John T. Bartlett,	Raymond.
Frank P. Jones,	Merrimack.	F. H. Littlehale,	Keene.
Abbott Norris,	Hampton.	H. B. Drew,	Portsmouth.
Abbott A. Locke,	Seabrook.	Charles F. Davis,	Peterborough.
F. H. Rollins,	Plymouth.	Isaac Davis,	East Canaan.
D. N. Tilton,	East Northwood.	Samuel D. Downes,	Francetown.
George I. Philbrick,	Freedom.	Frank R. Dooley,	Littleton.
George F. Huckins,	Freedom.	H. Sleeper,	Meriden.
F. P. Fisher,	Enfield Center.	George Melvin,	Lyme Center.
Charles A. Dockham,	Gilmanton I. W.	H. L. Rowell,	East Kingston.
George W. Butler,	Portsmouth.	Geo. A. S. Kimball,	Hopkinton.
John W. Jewell,	Stratford.	George H. Burt,	Franconia.
James Ewins,	Salem.	George J. Richards,	Great Falls.
Edward E. Grimes,	Piermont.	W. A. Baker,	Lebanon.

PROVIDENT MUTUAL RELIEF ASSOCIATION.

[Incorporated July 26, 1878. Commenced business February 28, 1877.]

BENJAMIN F. PRESCOTT, *President*.ANTHONY C. HARDY, *Secretary*.

Principal office, Concord.

INCOME FOR 1888.

Membership fees, without deductions.....	\$540.00
Annual dues, as per contract.....	6,062.22
Assessments: Mortuary, \$50,632.93; expense, \$135.61.....	50,768.54
Medical examiners' fees paid by applicants.....	180.00
Total paid by members.....	\$57,550.76
Interest on deposits.....	61.04
Cash received from sale of safe.....	50.00
Received from all other sources, viz.:	
Postal cards, \$221.16; transfers, \$4.95; duplicate certificates, \$5.00.....	231.11
Total income.....	\$57,892.91
Balance of assets on hand December 31, 1887.....	3,701.96
Total net resources.....	\$61,594.87

DISBURSEMENTS FOR 1888.

Losses and claims.....	\$50,278.00
(Total paid to members..... \$50,278.00.)	
Commissions and fees paid to agents.....	3,515.96
Salaries of managers and agents not paid by commissions...	240.04
Salaries of officers.....	1,600.00
Salaries and other compensation of office employees.....	520.00
Medical examiners' fees paid by the association.....	116.55
Rents, \$155.00; advertising and printing, \$206.45.....	361.45
Postal cards, postage, and stationery.....	334.75
All other items, viz.:	
Legal services, \$152.18; commissioner's fees, \$5.00; office and traveling expenses, \$82.45.....	239.63
(Total expenses of management..... \$6,928.38.)	
Medical examiners' fees paid by applicants.....	180.00
Total disbursements.....	\$57,386.38
Balance December 31, 1888.....	\$4,208.49

Invested as follows:

INVESTED ASSETS.

Cash in office.....		\$239.22
Cash deposited in banks:		
Mechanicks' National Bank.....	\$2,768.27	
Merrimack Co. Savings Bank	1,201.00	
	<hr/>	3,969.27
Furniture, fixtures, and supplies.....		700.00
Total invested assets.....		<hr/> <hr/> \$4,908.49

LIABILITIES.

(None.)

CONTINGENT MORTUARY RESOURCES.

Mortuary assessments called but not due.....	\$8,188.20
due but not paid.....	250.90
resisted.....	2,000.00
Total due from members.....	<hr/> \$10,439.10

CONTINGENT MORTUARY LIABILITIES.

Losses adjusted, not due (5).....	\$10,000.00
resisted (1).....	2,000.00
Total contingent mortuary liabilities.....	<hr/> <hr/> \$12,000.00

EXHIBIT OF CERTIFICATES.

	<i>Number.</i>	<i>Amount.</i>
Certificates in force December 31, 1887.....	3,180	\$6,174,000.00
Certificates written during the year.....	268	492,000.00
Total	<hr/> 3,448	<hr/> \$6,666,000.00
Certificates ceased during 1888.....	72	145,000.00
Certificates in force December 31, 1888....	<hr/> <hr/> 3,376	<hr/> <hr/> \$6,521,000.00
Losses and claims unpaid December 31, 1887...	3	\$4,278.00
Losses and claims incurred during 1888.....	29	58,000.00
Total.....	<hr/> 32	<hr/> \$62,278.00
Losses and claims paid during 1888.....	26	50,278.00
Losses and claims unpaid Dec. 31, 1888.....	<hr/> 6	<hr/> <hr/> \$12,000.00

AGENTS.

C. H. Sanders,	Penacook.	C. W. Carter,	Boscawen.
J. H. Ballard,	Concord.	W. H. Weston,	Lisbon.
Hiram Clark,	Plymouth.	Baxter Gay,	New London.
J. E. Dewey,	Lebanon.	C. C. Moulton,	Andover.
P. F. Amidon,	Hinsdale.	Moody C. Dole,	Campton.
Henry Abbott,	Winchester.	Loren E. Bailey,	Salem.
J. W. Sturtevant,	Keene.	Alvin Peavey,	Meredith Vil.
W. A. Berry,	Bristol.	Ezra B. Mann,	Woodsville.
A. C. Hoyt,	Portsmouth.	S. D. Downes,	Francestown.
C. C. Rogers,	Tilton.	E. B. Pike,	Haverhill.
A. W. Smith,	Milford.	S. T. Sinclair,	E. Rochester.
A. E. Jaques,	Wilton.	E. Richardson,	Newmarket.
H. B. Atherton,	Nashua.	J. B. Brown,	Wentworth.
J. K. Moulton,	Franklin.	H. P. Smith,	Bethlehem.
M. M. Robinson,	Laconia.	H. W. Bond,	Charlestown.
C. H. Pitman,	Farmington.	H. N. Colbath,	Barnstead.
Edward A. Shute,	Exeter.	G. G. Wells,	Sutton.
C. E. McIntire,	Lancaster.	J. B. Lane,	Whitefield.
John L. Renfrew,	Littleton.	D. B. Russell,	Hanover.
F. S. Cole,	Pittsfield.	C. F. Piper,	Wolfeborough.
W. F. Harmon,	Great Falls.	L. W. Currier,	Enfield.
Edwin A. Jones,	Scytheville.	N. P. Baker,	Sunapee.
W. F. Nason,	Dover.	W. H. Manning,	Northwood.
E. H. Blaisdell,	Lake Village.	A. S. Bartholomew,	Plainfield.
J. W. Prescott,	Hooksett.	A. F. Patten,	Candia.
W. H. Stickney,	Epping.	W. H. Batchelder,	Derry Depot.
E. H. Paine,	Suncook.	H. E. Oleson,	Berlin Falls.
E. W. Baker,	Antrim.	A. W. Hawkes,	Claremont.
Rufus Hall,	Grantham.	Secretary,	Concord.
J. R. Miller,	Peterborough.	H. M. Giffin,	Warner.
C. O. Barney,	Canaan.	H. F. Deming,	Newport.
O. L. Shepard,	W. Concord.	D. N. Pollard,	Ashland.
C. Coolidge,	Hillsborough.	J. C. L. Wood,	Conway.
A. L. Rollins,	Alton.	C. F. Wood,	Salmon Falls.
A. S. Parshley,	Rochester.	J. M. Ackerman,	Hampton.
F. A. Hawley,	Manchester.	J. H. Hillman,	Warren.

PEMIGEWASSET MUTUAL RELIEF ASSOCIATION.

[Incorporated August 19, 1885.

Commenced business February 6, 1886.]

MARD N. DAVIS, *President*.JOSEPH C. STORY, *Secretary*.

Principal office, Plymouth.

INCOME FOR 1888.

Membership fees, without deductions.....	\$12,848.50	
Annual dues, as per contract.....	2,743.06	
Assessments (mortuary).....	13,770.13	
Medical examiners' fees paid by applicant	1,733.00	
Total paid by members.....		\$31,094.69
Cash received for book sold.....		4.15
Total income.....		\$31,098.84
Balance of assets on hand December 31, 1887.....		72.05
Total net resources.....		\$31,170.89

DISBURSEMENTS FOR 1888.

Losses and claims.....	\$13,770.13
Advance payments returned to rejected applicants.....	19.00
<i>(Total paid to members .....\$13,789.13.)</i>	
Commissions and fees paid to agents	11,815.71
Salaries of officers.....	2,187.36
Salaries or other compensation of office employees.....	29.75
Medical examiners' fees paid by the association.....	422.64
Rent, \$60.00; advertising and printing, \$374.89.....	434.89
Postage, \$365.13; general expenses, \$262.37.....	627.50
<i>(Total expenses of management .....\$15,517.85.)</i>	
Medical examiners' fees paid by applicants.....	1,733.00
Total disbursements.....	\$31,039.98
Balance December 31, 1888.....	\$130.91

Invested as follows:

INVESTED ASSETS.

Cash deposited in Pemigewasset National Bank ..	.....	\$130.91
Total invested assets as per balance.....		<u>\$130.91</u>

LIABILITIES.

(None.)

CONTINGENT MORTUARY RESOURCES.

Mortuary assessments for losses unadjusted....	\$9,000.00	
resisted	2,000.00	
reported.....	<u>7,000.00</u>	
Total due from members.....		\$18,000.00

CONTINGENT MORTUARY LIABILITIES.

Losses in process of adjustment (3)	\$9,000.00	
reported (3)	7,000.00	
resisted (1)	<u>2,000.00</u>	
Total contingent mortuary liabilities.....		<u>\$18,000.00</u>

EXHIBIT OF CERTIFICATES.

	<i>Number.</i>	<i>Amount.</i>
Certificates in force December 31, 1887.....	736	\$1,810,500.00
Certificates written during the year.....	1,733	<u>4,777,500.00</u>
Total.....	2,469	\$6,588,000.00
Certificates ceased during 1888.....	94	<u>280,000.00</u>
Certificates in force December 31, 1888.....	<u>2,375</u>	<u>\$6,308,000.00</u>
Losses and claims unpaid December 31, 1887.....	4	\$11,000.00
Losses and claims incurred during 1888.....	6	<u>13,770.13</u>
Total.....	10	\$24,770.13
Losses and claims paid during 1888.....	6	<u>13,770.13</u>
Losses and claims unpaid Dec. 31, 1888.....	<u>7</u>	<u>\$18,000.00</u>

AGENTS.

Edwin B. Currier,	Ashland.	Eben E. Roberts,	Meredith.
E. J. Eastman,	Ashland.	George F. Sanborn,	Meredith.
E. P. Fairbanks,	Ashland.	Daniel Goodwin,	Mason.
E. C. Bean,	Belmont.	B. P. Roberts,	Milton.
E. M. Abbott,	Berlin Mills.	Aked D. Ellingwood,	Milan.
John E. Blanchard,	Barnstead.	B. F. Foster,	Milford.
George E. Stiles,	Brookline.	William Clifford,	Meredith.
O. D. Fessenden,	Brookline.	E. R. Willey,	Meredith.
George W. Cofran,	Bradford.	James D. LeGro,	Milan.
W. H. Yates,	Bartlett.	B. F. Allbee,	Milton Mills.
Charles W. Fling,	Bristol.	Peter Fitzpatrick,	Manchester.
W. W. Philbrook,	Conway Center.	George E. Morrison,	Manchester.
N. W. Bean,	Chichester.	Arthur Browne,	Manchester.
E. M. Allen,	Canaan.	M. D. Richardson,	Melvin Village.
Walter C. Story,	Colebrook.	C. E. Hatch,	Manchester.
John L. Rogers,	North Conway.	Samuel S. Hatch,	} Manchester.
William F. Thompson,	Coös.	I. E. Knight,	
Charles E. Clark,	Colebrook.	V. C. Brockway,	Northumberland
F. P. Rogers,	Charlestown.	W. S. Knowlton,	Newbury.
G. R. Cushing,	Colebrook.	Lyman D. Cook,	Northwood.
Walter Drew,	Concord.	A. C. Whitten,	Nashua.
A. P. Chesley,	Centerville.	Henry W. Hayward,	Newport.
Charles A. White,	Chatham.	Frank P. Morrill,	New Ipswich.
Charles H. Binford,	Dunbarton.	H. N. Gould,	New Hampton.
O. H. A. Chamberlin,	Dublin.	Edward A. Lane,	Newton.
George W. Gleason,	Dover.	Moses A. Ferrin,	Pittsfield.
F. O. Marshall,	Dover.	John M. Sargent,	Plymouth.
L. R. Browne,	Enfield.	William F. Fernald,	Pittsfield.
H. W. Flanders,	Enfield.	I. G. Whitecomb,	Portsmouth.
B. W. Pattee,	Enfield.	John F. Cram,	Potter Place.
H. J. Cate,	Enfield.	Lewis Barter,	Pittsfield.
George W. Cross,	Effingham Falls.	C. E. T. Yeaton,	Concord.
Francis L. Cook,	Farmington.	John C. Berry,	Portsmouth.
C. H. Pitman,	Farmington.	J. C. Breen,	Plymouth.
W. H. W. Colomy,	Farmington.	Charles E. Wallridge,	Plymouth.
Bion I. Hutchins,	Franklin Falls.	A. S. Parshley,	Farmington.
Frank H. Daniels,	Great Falls.	John T. Bartlett,	Rochester.
Joseph E. Hobson,	Gorham.	Clinton B. Simpson,	Raymond.
Charles H. Shorey,	Great Falls.	Henry T. Sanborn,	West Rumney.
F. R. L. Mildon,	Great Falls.	William E. Spencer,	Springfield.
A. H. James,	Grafton.	Harrison M. Quimby,	Salmon Falls.
Fred A. Eastman,	Greenville.	William M. Rich,	Sandwich Cen.
Henry W. Hayward,	Groveton.	P. F. Parker,	Scotts.
J. M. Wilson,	Hinsdale.	Fred W. Downing,	Tilton.
E. J. Temple,	Hillsboro' Br.	C. F. Chick,	West Thornton.
Henry C. Colby,	Jefferson.	Otis I. Hatch,	Tamworth I. W.
Richard B. Eastman,	East Jaffrey.	Fred C. Gleason,	Tamworth.
W. H. Goodnow,	East Lebanon.	H. W. Brigham,	Warren.
F. E. Sargent,	Lyme Center.	William H. Davis,	Winchester.
C. H. Dimick,	Lancaster.	Joseph W. Goodwin,	Wentworth.
William H. Thompson,	Littleton.	George M. Clough,	Wolfeborough.
Charles W. Garland,	Lisbon.	Andrew J. Milliken,	Warner.
Spencer A. Vandercar,		J. H. Bliss,	Wakefield.
Charles H. Stoddard,			Winchester.

LIFE INSURANCE COMPANIES

OF OTHER STATES.

DETAILED STATEMENTS OF ASSETS AND LIABILITIES, WITH
ABSTRACTS OF ANNUAL STATEMENTS, AND NAMES
OF AGENTS, FOR THE YEAR ENDING
DECEMBER 31, 1888.

ÆTNA LIFE INSURANCE COMPANY.

[Incorporated, 1820. Commenced business, 1850.]

MORGAN G. BULKELEY, *President.*JOEL L. ENGLISH, *Secretary.*

Principal office, Hartford, Conn.

CASH CAPITAL, \$1,250,000.00.

INCOME.

New premiums, without deductions.....	\$478,063.61	
Renewal premiums	2,750,598.59	
Premiums paid by surrendered policies	176,301.96	
Total.....	\$3,404,964.16	
Deduct amount paid for re-insurance.....	699.43	
Total premium income.....		\$3,404,264.73
Cash received for interest on:		
Mortgage loans.....		1,019,739.34
Bonds owned and dividends on stock.....		546,791.33
Premium notes, loans or liens.....		80,082.05
Other debts due the company.....		30,056.42
Deposits		31,346.37
Discount on claims paid in advance.....		13,297.35
Rents for use of company's property.....		8,151.74
Total income.....		\$5,133,729.33
Net or ledger assets December 31, 1887.....		31,234,520.72
Total		\$36,368,250.05

DISBURSEMENTS.

Cash paid for losses and additions.....	\$1,457,857.23	
Premium notes, loans or liens used in payment of same	52,127.48	
Cash paid for matured endowments and additions.....	759,793.96	
Premium notes, loans or liens used in payment of same	18,367.63	
Gross amount paid for losses and endowments.....	\$2,288,146.30	
Received for losses or claims on policies re-insured. ..	148.00	
Net amount paid for losses and endowments.....		\$2,287,998.30
Cash paid for surrendered policies.....		95,429.54

Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	\$29,836.20
Surrender values, including re-converted additions applied in payment of premiums.....	176,801.96
Cash dividends paid policy holders	498,249.90
Premium notes, loans or liens used in payment of dividends	93,303.39
Cash paid stockholders for interest or dividends.....	125,000.00
Commissions to agents.....	401,884.69
Salaries and traveling expenses of agents.....	64,993.18
Medical examiners' fees.....	26,058.00
Salaries of officers and office employees.....	72,701.33
Taxes and fees	90,980.15
Rent	14,065.52
Furniture and fixtures for offices.....	907.37
Advertising	9,373.41
All other items, viz.:	
Supplies, \$15,310.98; express, \$3,453.90; exchange, \$1,903.86; telegraph, \$716.12; postage, \$16,032.81; printing, \$3,998.93; stationery, \$2,768.46; legal, \$7,728.26; incidentals, \$5,056.20.....	56,969.52
Total disbursements during the year.....	\$4,044,052.46
Balance December 31, 1888.....	\$32,324,197.59

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$582,504.70
Loans on mortgages of real estate (first liens)	15,723,590.77

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Keithsburg Township bonds.....	\$2,000.00	\$2,680.00
City of Beardstown bonds.....	1,500.00	
Hartford Carpet Co. stock.....	4,125.00	
Hartford City Coal & Salt Co. stock.....	10,000.00	42,700.00
United States Bank stock.....	3,250.00	
Ætna Fire Insurance Co. stock	30,380.00	
Willimantic Linen Co. stock	13,500.00	58,363.31
Willimantic Linen Co. stock.....	18,000.00	
Hartford Carpet Co. stock.....	8,250.00	
Ætna Fire Insurance Co. stock	15,925.00	41,400.00
United States Bank stock.....	37,500.00	
Ætna Fire Insurance Co. stock.....	53,165.00	
Hartford Carpet Co. stock.....	4,950.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
United States Bank stock.....	\$12,500.00	} \$4,000.00
Orient Fire Insurance Co. stock.....	900.00	
Ætna Fire Insurance Co. stock	52,185.00	25,000.00
Wheeler & Wilson Mfg. Co. stock.....	32,500.00	} 45,125.00
Willimantic Linen Co. stock.....	12,645.00	
Assignment of Mortgage	6,000.00	
Willimantic Linen Co. stock.....	10,485.00	10,000.00
Southern N. E. Telephone Co. stock.....	15,000.00	10,000.00
Ætna Fire Insurance Co. stock.....	3,920.00	2,500.00
Stanley Rule & Level Co. stock.....	12,000.00	} 23,000.00
Willimantic Linen Co. stock.....	15,075.00	
Plympton Manufacturing Co. stock.....	15,000.00	5,000.00
Assignment of Mortgages.....	2,600.00	2,500.00
Ætna Fire Insurance Co. stock.....	6,125.00	5,000.00
Conn. Western R. R. bonds.....	300,000.00	230,000.00
Merrick Thread Co. stock.....	12,600.00	9,000.00
Hartford Fire Insurance Co. stock.....	34,375.00	} 24,500.00
Ætna Fire Insurance Co. stock.....	12,740.00	
Total value and amount loaned	<u>\$759,195.00</u>	<u>\$540,768.31</u>
Loans on collateral securities.....		\$540,768.31
Loans on company's policies as collateral.....		408,189.62
Premium notes, loans or liens on policies in force.....		1,339,788.47

SCHEDULE OF STOCKS AND BONDS.

<i>BANK STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
Connecticut River Banking Co.	\$20,365.00	\$11,280.00
Metropolitan Bank, New York.....	6,187.50	750.00
Phoenix National Bank, Hartford.....	124,285.50	110,160.00
Mercantile National Bank, Hartford.....	42,885.25	38,000.00
City National Bank, Hartford.....	60,900.75	42,560.00
Hartford National Bank, Hartford.....	107,720.25	118,500.00
First National Bank, Hartford.....	92,060.66	73,900.00
National Exchange Bank, Hartford	93,729.80	93,120.00
American National Bank, Hartford	93,576.87	104,520.00
Farmers & Mech. Nat'l Bank, Hartford...	83,664.25	39,585.00
Suffield National Bank.....	8,375.00	9,900.00
New Britain National Bank.....	28,450.00	35,000.00
Charter Oak National Bank, Hartford.....	97,572.25	87,780.00
Ætna National Bank, Hartford.....	79,969.46	74,900.00
Hartford Trust Co., Hartford.....	25,065.00	30,000.00
United States Bank, Hartford	5,262.50	12,500.00
Rockville National Bank.	20,000.00	24,000.00
Security Company, Hartford.....	10,000.00	13,000.00

U. S. GOVERNMENT BONDS.

United States Funded Loan.....	975,875.00	1,103,900.00
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R. R. AND OTHER STOCKS AND BONDS.

Connecticut River R. R. stock.....	39,372.25	71,760.00
Ætna Fire Insurance stock.....	19,236.68	20,580.00
N. Y., N. H. & Hartford R. R. stock.....	144,569.75	235,200.00

Cost Value. Market Value.

Columbus & Indianapolis R. R. bonds.....	\$45,000.00	\$51,500.00
Cincinnati & Indiana R. R. bonds.....	20,675.00	24,720.00
Cleveland, P. & Ashtabula R. R. bonds....	13,671.25	15,400.00
St. Johnsbury & L. Champlain R. R. bonds	105,000.00	105,000.00
Union Pacific R. R. bonds.....	30,690.00	33,750.00
Keokuk & Des Moines R.R.stock and bonds	22,033.20	16,590 00
Cleveland & Pittsburg R. R. bonds.....	747.50	1,000 00
Atlantic Dock bonds.....	25,000.00	27,000.00
Chicago, Milwaukee & St. Paul R. R. bonds.	25,000.00	27,500.00
Vermont Valley R. R. bonds.....	150,750.00	157,500.00
Chicago, Bur. & Quincy R. R. stock.....	12,687.50	11,990.00
N. Y. Central & Hudson River R. R. stock.	25,000.00	21,600 00
Union Pacific R. R. stock.....	18,625.00	12,800.00
Terre Haute & Logansport R. R. bonds...	100,000.00	110,000.00

STATE AND CITY BONDS.

Province of Manitoba.....	149,893.34	164,010.00
South Carolina, state.....	29,410.00	39,369.75
Virginia, state.....	21,357.94	19,000.00
Tennessee, state.....	25,100.00	18,825.00
Connecticut, state.....	500,000.00	512,500.00
Mississippi, state.....	10,000.00	10,000.00
Richmond, city.....	20,500.00	26,250.00
Mobile, city.....	140,500.00	115,210.00
Hartford Non-Taxable, city.....	68,950.00	82,800.00
Hartford Capitol, city.....	87,740.00	105,600.00
Hartford Funded, city.....	163,620.00	189,200.00
Louisville, city.....	89,750.00	112,000.00
Kansas, city.....	90,500.00	115,000.00
New Britain, city.....	130,689.00	149,500.00
Chicago Water Loan, city.....	50,000.00	55,000.00
Peoria, city.....	9,200.00	15,750.00
Council Bluffs, city.....	17,000.00	17,000.00
Plattsmouth, Neb., city.....	23,000.00	23,000.00
London, Ont., city.....	75,000.00	76,125.00
Beardstown, city.....	2,980.00	5,000.00
New Boston, city.....	4,750.00	8,000.00
Jersey City, city.....	122,900.00	136,500.00
Ottawa, city.....	133,000.00	144,305.00
Newark, city.....	172,015.00	200,100.00
Indianapolis, city.....	487,570.00	550,000.00
Quincy, city.....	13,864.00	26,300.00
Milwaukee Water, city..	72,500.00	78,750.00
Cincinnati, city.....	100,000.00	130,000.00
Hartford Water, city.....	1,000.00	1,000.00
St. Paul, city.....	52,350.00	66,000.00
St. Paul, Neb., city.....	20,000.00	20,000.00
Webster, city.....	37,950.00	37,950.00
Hull, city.....	40,000.00	41,200.00
Girard, city.....	5,000.00	5,000.00
Oxford, city.....	9,800.00	10,000.00
Lincoln, city.....	29,500.00	30,975.00
Olathe City, city.....	12,000.00	12,000.00
Emporia, city.....	20,500.00	20,500.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Wymore, city.....	\$5,000.00	\$5,000.00
Audubon, city.....	5,600.00	5,600.00
Virginia City, city.....	6,500.00	6,500.00
Ness City, city.....	11,875.00	12,500.00
Russell, city.....	5,000.00	5,000.00
Montreal Harbor, city.....	60,000.00	64,800.00
Lincoln, city.....	11,880.00	12,000.00
Quebec, city.....	40,000.00	41,350.00
Stratford, city.....	21,000.00	22,680.00
Toronto, city.....	100,667.00	102,200.00
Winfield, city.....	10,000.00	10,000.00
Dighton, city.....	6,000.00	6,000.00
Kendallville, city.....	13,000.00	13,000.00
Wichita, city.....	46,000.00	50,000.00
Quebec, government.....	207,500.00	232,400.00
Hartford City Salt Company.....	15,000.00	15,000.00
Cimarron, city.....	10,000.00	10,000.00
David, city.....	6,300.00	6,440.00
Ellsworth, city.....	37,260.00	37,665.00
Superior, city.....	13,000.00	13,000.00
Seneca, city.....	9,500.00	9,500.00
Pratt, city.....	12,900.00	13,500.00
Burrton, city.....	12,880.00	13,020.00
Lyons, city.....	32,200.00	32,550.00
Canton, city.....	6,405.00	6,510.00
Norton, city.....	11,400.00	11,400.00
Kingman, city.....	10,000.00	10,000.00
South Hutchinson, city.....	3,500.00	3,500.00
Conway Springs, city.....	13,000.00	13,000.00
Douglass, city.....	11,000.00	11,000.00
Coolidge, city.....	10,000.00	10,000.00
Johnson, city.....	7,350.00	7,350.00
Engleworth, city.....	4,200.00	4,200.00
Seward, city.....	13,500.00	13,800.00
Governor's Foot Guard.....	10,000.00	10,000.00
City of Alma.....	8,122.50	8,100.00
City of Orleans.....	8,500.00	8,500.00
City of Hastings.....	54,000.00	57,000.00
Warren, county.....	930.00	1,000.00
Blackford, county.....	4,000.00	4,200.00
Carroll, county.....	9,000.00	9,450.00
Monroe, county.....	35,000.00	42,000.00
Ford, county.....	48,500.00	52,500.00
Adams, county.....	37,937.50	54,000.00
Christian, county.....	30,250.00	31,000.00
Sangamon, county.....	24,250.00	27,000.00
Maconpin, county.....	78,800.00	82,740.00
Mason and Tazewell, county.....	27,000.00	28,350.00
Mason and Tazewell, county.....	25,000.00	26,250.00
Sangamon, county.....	46,000.00	52,500.00
Gallatin, county.....	10,400.00	13,000.00
Hudson (N. J.).....	49,843.75	52,500.00
Ramsey, county.....	32,000.00	35,200.00
Tazewell, county.....	50,000.00	52,500.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Edward, county.....	\$20,000.00	\$21,000.00
Johnson, county.....	85,000.00	89,250.00
Warren, county.....	3,800.00	3,800.00
Moultrie, county.....	60,000.00	60,000.00
Ellsworth, county.....	26,000.00	27,300.00
Lyon, county.....	35,000.00	29,750.00
Monroe, county.....	4,000.00	4,000.00
Pawnee, county.....	25,000.00	25,000.00
Cerro Gordo, county.....	10,000.00	10,000.00
Harper, county.....	11,500.00	12,075.00
Clay, county.....	15,000.00	15,000.00
Stafford, county.....	5,000.00	5,250.00
Washington, county.....	34,000.00	35,700.00
St. Clair, county.....	10,000.00	10,000.00
Benton, county.....	18,000.00	18,000.00
St. Clair, drainage.....	39,000.00	39,000.00
Hunt Drainage District.....	24,250.00	25,000.00
Drainage District No. 3.....	3,380.00	3,380.00
Union Drainage District.....	15,300.00	15,450.00

COUNTY AND TOWN BONDS.

Reno, county.....	20,500.00	21,525.00
Seward, county.....	39,000.00	39,000.00
Clay, county.....	24,125.00	25,000.00
Jackson, county bridge.....	7,000.00	7,000.00
Paris, town.....	21,000.00	21,000.00
Hartford, town.....	14,710.00	15,750.00
Georgetown, town.....	12,000.00	12,600.00
Mt. Pulaski, town.....	14,000.00	14,700.00
Grant, town.....	30,000.00	31,500.00
Urbana, town.....	3,500.00	3,500.00
Penn, town.....	12,525.00	13,000.00
Moline, town.....	5,000.00	5,000.00
Rock Island, town.....	5,000.00	5,000.00
Lennox, town.....	3,500.00	3,500.00
Mattoon, town.....	20,250.00	27,000.00
Jackson, town.....	9,900.00	10,000.00
Kirklin, town.....	2,000.00	2,000.00
Coaticook, town.....	21,000.00	21,000.00
Breckenridge, town.....	5,000.00	5,000.00
Galva, town.....	14,700.00	15,000.00
Lake Fork, town.....	12,593.73	12,593.73
Keithsburg, town.....	23,000.00	23,000.00
Ross, town.....	27,360.00	27,360.00
East Windsor, town.....	9,700.00	10,000.00
Levis, town.....	36,500.00	36,500.00
Stewart, town.....	3,000.00	3,000.00
Highland, town.....	10,000.00	10,000.00
Newman and Fullerton.....	7,000.00	7,000.00
Rock Creek, town.....	28,710.00	29,000.00
Sprague, town.....	40,133.33	42,000.00
Province of Quebec, town.....	153,187.50	168,300.00
Bloomfield, town.....	40,824.00	40,000.00
Dodge, town.....	3,000.00	3,000.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Champaign, town.	\$55,000.00	\$57,750.00
Mt. Forest, town.	20,000.00	20,600.00
Sangamon, town.	11,000.00	11,000.00
Pleasant, town.	35,350.00	35,000.00
Hagar Slough, town.	7,000.00	7,000.00
Boone, town.	13,000.00	13,000.00
Creek, town.	22,000.00	22,000.00
North Baltimore, town.	10,000.00	10,000.00
Angus, town.	5,000.00	5,000.00
Reeder, town.	15,840.00	16,000.00
Jefferson, town.	6,000.00	6,000.00
Humeston, town.	3,500.00	3,500.00
Great Bend, town.	6,000.00	6,000.00
Abington, town.	2,000.00	2,000.00
Harlan, town.	6,600.00	6,600.00
Edgewood Village, town.	4,000.00	4,000.00
Tuscola, town.	10,000.00	10,000.00
Butler, town.	17,000.00	17,000.00
Emmetsburg, town.	4,000.00	4,000.00
Allerton, town.	4,000.00	4,000.00
Coldwater, town.	10,000.00	10,000.00
Lamard, town.	9,000.00	9,000.00
Wild Cat, town.	3,000.00	3,000.00
Hubbard, town.	3,000.00	3,000.00
Fond du Lac, town.	55,000.00	57,750.00
Sabula, town.	7,000.00	7,000.00
Lennox, town.	8,400.00	10,000.00
Lewiston, town.	45,000.00	47,250.00
Creek, town.	18,000.00	18,540.00
Neodesha, town.	12,000.00	12,000.00
Baxter Springs, town.	10,500.00	10,500.00
Monroe Township, town.	38,610.00	39,000.00
Morton Township, town.	8,550.00	9,000.00
Henderson, town.	4,750.00	5,000.00
Lockridge, town.	7,600.00	8,000.00
Stranger, town.	9,600.00	9,600.00
Washington, town.	14,400.00	14,400.00
Washington, town.	31,300.00	32,100.00
Rolling Prairie, town.	18,000.00	18,000.00
Cicero, town.	2,500.00	2,500.00
Hayes, town.	17,575.00	18,050.00
McFadden, town.	9,500.00	9,500.00
Leroy, town.	7,600.00	7,600.00
Tonganoxie, town.	19,200.00	19,200.00
Eagle, town.	13,800.00	14,250.00
Valley Center, town.	9,200.00	9,500.00
Richland, town.	12,040.00	12,040.00
Little River, town.	21,160.00	21,390.00
Victoria, town.	20,240.00	20,460.00
Liberty, town.	7,600.00	7,440.00
Burrton, town.	23,920.00	24,180.00
Green Garden, town.	13,800.00	13,950.00
Phillipsburg, town.	9,150.00	9,300.00
Plum, town.	12,900.00	13,500.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Center, town	\$20,300.00	\$20,700.00
Jefferson, town	7,600.00	7,600.00
Lake, town	17,480.00	17,670.00
Richland, town.	12,352.50	12,555.00
Lincoln, town	13,800.00	13,950.00
Elk Creek, town	7,600.00	7,440.00
Limestone, town	13,725.00	13,950.00
Ezbon, town	8,600.00	9,000.00
Groveland, town	13,760.00	14,400.00
Banner, town	13,760.00	14,400.00
Hamson, town	18,000.00	18,000.00
Valparaiso, town	5,500.00	5,500.00
Haynesville, town.	17,100.00	17,480.00
Turkey Creek, town	2,707.50	2,760.00
May, town	4,061.25	4,140.00
Pleasant Valley, town	3,900.00	3,900.00
Antelope, town	4,512.50	4,600.00
Little Blue, town	2,707.50	2,760.00
Alma, town	5,866.25	5,980.00
Township G, town	9,000.00	9,200.00
Franklin, town	6,300.00	6,440.00
Township M, town	9,000.00	9,200.00
Township L, town	4,500.00	4,600.00
Township B, town	9,000.00	9,200.00
Brown, town	5,400.00	5,520.00
New York, town	9,000.00	9,200.00
Baker, town	9,000.00	9,200.00
Henderson, town	4,500.00	4,600.00
Thayer, town	4,500.00	4,600.00
Stewart, town	9,000.00	9,200.00
Union, town	5,400.00	5,520.00
Bone Creek, town	9,000.00	9,200.00
Read, town	9,000.00	9,200.00
Olive, town	5,400.00	5,520.00
Oak Creek, town	5,400.00	5,520.00
Stromburg Village, town	12,000.00	12,000.00
Village of Ord, town	4,000.00	4,000.00
Bowen Precinct, town	10,000.00	10,000.00
Victor Precinct, town	15,000.00	15,000.00
Fairmouth Precinct, town	27,075.00	27,600.00
Lincoln Precinct, town	6,300.00	6,440.00
Center Precinct, town	6,300.00	6,440.00
Twin Grove Precinct, town	9,000.00	9,200.00
Madison Precinct, town	4,500.00	4,600.00
Harvard Precinct, town	22,500.00	23,000.00
Geneva Precinct, town	13,500.00	13,800.00
Exeter Precinct, town	18,000.00	18,400.00
Ainsworth Precinct, town	10,550.00	10,600.00
Coolidge Bridge, town	8,400.00	8,400.00
School District No. 5	820.00	800.00
School District No. 18	6,000.00	6,000.00
School District No. 9	10,000.00	10,000.00
School District No. 5	10,400.00	10,000.00
School District No. 6 (Kansas)	1,500.00	1,500.00

	<i>Cost Value.</i>	<i>Market Value.</i>
School District No. 6 (Illinois).....	\$1,500.00	\$1,500.00
School District No. 2.	4,900.00	4,900.00
School District No. 19.....	10,000.00	10,000.00
School District No. 6 (Gove Co., Kansas)...	5,000.00	5,000.00
Marcus School District, school.....	3,000.00	3,000.00
Creston, school.....	19,000.00	19,950.00
Spring Creek, school.....	5,000.00	5,000.00
Cedar Rapids, school	147,000.00	147,000.00
Milton, school	1,000.00	1,000.00
Ida Grove, school	17,000.00	17,000.00
Glad Brook, school	2,500.00	2,500.00
Centreville, school	18,000.00	18,000.00
Hampton, school.....	7,500.00	7,500.00
South Bend, school.....	1,000.00	1,000.00
Defiance, school.....	3,743.00	3,800.00
Batavia, school.....	10,000.00	10,000.00
Sidell, school	2,700.00	2,700.00
Alta, school.....	5,200.00	5,200.00
Portland, school	9,000.00	9,000.00
Odebolt, school	3,250.00	3,250.00
Spencer, school	4,000.00	4,000.00
South English, school.....	2,000.00	2,000.00
Camargo, school	5,000.00	5,000.00
Van Horne, school.....	2,500.00	2,500.00
Garwin, school	800.00	800.00
Oxford Junction, school	5,000.00	5,000.00
Snow Hill, school	4,200.00	4,200.00
Goldfield, school.....	1,000.00	1,000.00
Chariton, school.....	7,000.00	7,000.00
Sibley, school.....	2,000.00	2,000.00
Clearfield, school.....	2,200.00	2,200.00
School District No. 37, school (Neb.)	9,000.00	9,000.00
School District Nos. 4 and 77, school.....	4,000.00	4,000.00
Dunlap, school.....	8,000.00	8,000.00
Imogene, school.....	2,000.00	2,000.00
School District No. 10, school.....	2,000.00	2,000.00
Marshalltown, school.....	15,000.00	15,000.00
Lineville, school.....	4,000.00	4,000.00
Vermillion, school.....	5,000.00	5,000.00
Panora, school	7,000.00	7,000.00
Saline County, school.....	1,859.65	1,859.65
School District No. 42, school.....	5,000.00	5,000.00
Lebanon, school.....	19,000.00	19,000.00
Total values.....	<u>\$9,986,406.91</u>	<u>\$10,665,798.13</u>
Cost value of stocks and bonds.....		\$9,986,406.91
Cash in company's office		56,826.83
Cash deposited in banks.....		3,680,774.83
Bills receivable.....		2,901.23
Agents' ledger balances.....		2,445.92
Total net or ledger assets, as per balance.....		<u>\$32,324,197.59</u>

OTHER ASSETS.

Interest due and accrued on:

Mortgages	\$280,976.89
Stocks and bonds	95,753.28
Collateral loans	8,758.16
Premium notes, loans or liens	146,118.61
Market value of stocks and bonds over cost	679,391.22
Premiums due and unreported on policies in force	\$93,891.37
Deferred premiums on policies in force	189,947.85
Total	\$283,839.22
Deduct average loading (25 per cent)	70,678.00
Net amount of uncollected and deferred premiums	213,161.22
Total assets as per books of the company	\$33,743,356.97

ITEMS NOT ADMITTED.

Agents' balances	\$2,445.92
Bills receivable	2,901.23
Total items not admitted	5,347.15
Total admitted assets	\$33,743,009.82

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest

.....	\$27,596,355.00
Deduct net value of re-insured risks	50,915.00
Net re-insurance reserve	\$27,545,440.00
Death losses due and unpaid	\$41,313.00
Matured endowments due and unpaid	40,648.00
Death losses and matured endowments not due	143,568.00
Death losses and other policy claims resisted	26,500.00
Total policy claims	252,029.00
Unpaid dividends of surplus due policy holders	150,764.88
Premiums paid in advance	6,221.95
Liabilities as to policy holders	\$27,954,455.83
Paid-up capital	\$1,250,000.00
Surplus over capital	4,538,553.99
Surplus as regards policy holders	5,788,553.99
Gross liabilities	\$33,743,009.82

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$1,481,434.14	
Premium notes, loans or liens received during the year	<u>60,155.47</u>	
Total		\$1,541,589.61
Deductions during the year, as follows: Notes, loans or liens used in:		
Payment of losses and claims.....	\$70,495.11	
Purchase of surrendered policies and voided by lapse.	29,836.20	
Payment of dividends to policy holders.....	93,303.39	
Redeemed by maker in cash.....	<u>8,166.44</u>	
Total reduction		201,801.14
Balance of note assets December 31, 1888.....		<u><u>\$1,339,788.47</u></u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	36,452	\$51,155,040.94
Endowment policies	22,481	30,879,580.50
All other policies.....	6,552	15,337,713.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	1,358	2,573,050.00
Endowment policies.....	4,129	7,521,637.00
All other policies.....	2,596	5,999,900.00

OLD POLICIES REVIVED AND INCREASED.

Whole life policies.....	3	31,725.00
Endowment policies.....	6	29,841.00
All other policies.....	38	77,400.00

Total number and amount.....	73,615	\$113,605,887.44
Deduct policies ceased to be in force.....	5,866	10,701,584.00
Total in force December 31, 1888.....	<u>67,749</u>	<u><u>\$102,904,303.44</u></u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	36,391	\$50,909,838.94
Endowment policies in force.....	23,876	34,447,856.50
All other policies in force.....	7,482	17,546,608.00
Total number and amount.....	<u>67,749</u>	<u><u>\$102,904,303.44</u></u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	955	\$1,604,814.00
maturity.....	882	769,687.00
expiry.....	233	436,400.00
surrender.....	862	1,495,118.00
lapse.....	1,514	3,573,507.00
change and decrease.....	27	90,114.00
Not taken.....	1,393	2,731,944.00
Total.....	<u>5,866</u>	<u>\$10,701,584.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887	887	\$911,387.00
Policies issued during the year.....	81	118,998.00
Total.....	<u>968</u>	<u>\$1,030,385.00</u>
Deduct policies ceased to be in force.....	64	57,024.00
In force in New Hampshire Dec. 31, 1888..	<u>904</u>	<u>\$973,361.00</u>
Losses and claims unpaid December 31, 1887...	5	\$1,458.00
Losses incurred during 1888.....	40	25,817.00
Total....	<u>45</u>	<u>\$27,275.00</u>
Losses and claims paid during 1888.....	<u>37</u>	<u>\$22,841.83</u>
Premiums collected or secured without deductions:		
Cash, \$28,281.65; notes or credits, \$1,394.40.....		<u>\$29,676.05</u>

AGENTS IN NEW HAMPSHIRE.

C. S. PARKER, General Agent, Concord.

C. N. White,
F. O. Chellis,
A. G. Monette,

Whitefield.
Newport.
Manchester.

W. O. S. Hodgdon,
N. A. Frost,
Henry B. Stevens,

Wolfeborough.
Hanover.
Nashua.

CONNECTICUT GENERAL LIFE INSURANCE COMPANY.

[Incorporated June, 1865. Commenced business October, 1865.]

THOMAS W. RUSSELL, *President.* FREDERICK V. HUDSON, *Secretary.*

Principal office, Hartford, Conn.

CASH CAPITAL, \$150,000.00.

INCOME.

New premiums without deductions.....	\$33,509.66	
Renewal premiums.....	173,394.60	
Premiums paid by dividends and surrendered policies..	10,586.50	
Total	<u>\$222,490.76</u>	
Deduct amount paid for re-insurance.....	2,981.70	
Total premium income.....		\$219,509.06
Cash received for interest on :		
Mortgage loans.....		71,852.14
Bonds owned and dividends on stock.....		14,655.75
Premium notes, loans or liens.....		3,906.22
Other interest, rents, and discount on claims		4,198.25
Profits on bonds or stocks sold.....		470.65
Total income.....		<u>\$314,592.07</u>
Net or ledger assets December 31, 1887.....		1,641,542.13
Total.....		<u>\$1,956,134.20</u>

DISBURSEMENTS.

Cash paid for losses.....	\$77,870.00	
Cash paid for matured endowments	20,436.80	
Gross amount paid for losses and endowments.....		\$98,306.80
Cash paid for surrendered policies.....		7,122.39
Premium notes, loans or liens voided by lapse		425.31
Surrender values applied in payment of premiums.....		6,016.58
Cash dividends paid policy holders, \$3,326.43; applied in payment of premiums, \$3,468.67.....		6,795.10

Premium notes, loans or liens used in payment of dividends.	\$1,101.25
<i>(Total paid policy holders .....\$119,767.43.)</i>	
Cash paid stockholders for interest or dividends.....	12,000.00
Commissions to agents	8,026.29
Salaries and traveling expenses of agents.....	29,010.25
Medical examiners' fees.....	3,258.00
Salaries of officers and office employees.....	14,378.64
Taxes and fees.....	4,648.67
Legal expenses.....	279.25
All other items, viz.:	
Printing, advertising, and all other charges	7,204.92
Total disbursements during the year.....	<u>\$198,573.45</u>
Balance December 31, 1888.....	<u>\$1,757,560.75</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$175,833.01
Loans on mortgages of real estate (first liens).....	1,172,990.80

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Hartford Carpet Co. stock.....	\$1,920.00	\$1,200.00
Orient Insurance Co., Hartford, stock.....	3,825.00	2,075.00
Phoenix Insurance Co., Hartford, stock....	6,290.00	4,500.00
Phenix Insurance Co., Hartford, stock....	6,290.00	4,500.00
American National Bank, Hartford, stock..	312.50	175.00
American National Bank, Hartford, stock	62.50	50.00
Mortgages assigned to company....	11,000.00	6,700.00
Total value and amount loaned.....	<u>\$29,700.00</u>	<u>\$19,200.00</u>

Loans on collateral securities.....	19,200.00
Loans on company's policies as collateral.....	14,972.52
Premium notes, loans or liens on policies in force.....	70,756.23

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
N. Y., N. H. & Hartford R. R.....	\$16,793.03	\$30,000.00
Fourth National Bank, N. Y.....	4,193.00	5,720.00
American National Bank, Hartford.....	13,538.00	13,500.00
Phoenix National Bank, Hartford.....	15,853.00	12,688.00
Charter Oak National Bank, Hartford.....	6,700.00	5,460.00
Hartford National Bank, Hartford.....	10,625.00	10,500.00

	<i>Cost Value.</i>	<i>Market Value.</i>
First National Bank, Hartford.....	\$13,978.25	\$10,000.00
Ætna National Bank, Hartford.....	2,373.50	2,100.00
Farmers & Mech. National Bank, Hartford.	2,250.67	1,260.00
City National Bank, Hartford.....	2,790.00	2,256.00
Thames National Bank, Norwich.....	6,850.00	7,000.00
Conn. Trust & Safe Dep. Co., Hartford.....	8,428.00	11,610.00
Security Co., Hartford.....	4,750.00	6,750.00

BONDS.

Washington, Indiana.....	9,775.00	10,300.00
Evansville, Indiana.....	14,425.00	15,000.00
Indianapolis, Indiana.....	24,500.00	27,500.00
Huron, Dakota, city warrant.....	1,500.00	1,500.00
Lyon County, Iowa.....	5,000.00	5,000.00
Cowley County, Kansas.....	10,250.00	10,300.00
Pawnee County, Kansas.....	5,000.00	5,150.00
Clay Township, school.....	7,000.00	7,000.00
Angus Township, Iowa.....	2,000.00	2,000.00
Oxford Township, Kansas.....	5,000.00	5,150.00
Mason & Tazewell Drainage Dist., Ill.....	15,696.50	15,696.50
Wildcat, Champaign Co. (Ill.), district.....	15,375.00	15,375.00
Big Slough, Champaign Co. (Ill.), district...	10,150.00	10,500.00
Woodburn, Iowa, Indian School.....	500.00	500.00
Exira, Iowa., Indian School.....	1,500.00	1,500.00
Lake Shore & Michigan So. R. R.....	5,089.38	6,710.00
St. Johnsbury & Lake Champlain R. R.....	10,500.00	10,500.00
Terre Haute & Logansport R. R.....	10,000.00	10,000.00
Arizona Canal Co.....	10,000.00	10,700.00

Total values.....	<u>\$272,383.33</u>	<u>\$289,225.50</u>
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Cost value of stocks and bonds.....	\$272,383.33
Cash in company's office.....	11,373.23
Cash deposited in banks.....	17,637.18
Bills receivable.....	1,254.86
Agents' ledger balances.....	1,159.59

Total net or ledger assets, as per balance.....	\$1,757,560.75
Deduct depreciation from cost of real estate.....	18,287.59

Total net or ledger assets, less depreciation.....	\$1,739,273.16
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OTHER ASSETS.

Interest due and accrued on:

Mortgages.....	\$19,756.23
Stocks and bonds.....	3,299.98
Collateral loans.....	873.53
Premiums notes, loans or liens.....	7,723.81
Market value of stocks and bonds over cost.....	16,842.17

Premiums due and unreported on policies in force.....	\$10,122.42	
Deferred premiums on policies in force.....	34,427.94	
Total.....	\$44,550.36	
Deduct average loading (20 per cent).....	8,910.07	
Net amount of uncollected and deferred premiums....		\$35,640.29
Total assets as per books of the company.....	\$1,823,409.17	

ITEMS NOT ADMITTED.

Agents' balances.....	\$1,159.59	
Bills receivable.....	1,254.86	
Total items not admitted.....		2,414.45
Total admitted assets.....	\$1,823,409.17	

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$1,347,664.00	
Deduct net value of re-insured risks.....	18,931.00	
Net re-insurance reserve.....		\$1,328,733.00
Matured endowments due and unpaid.....	\$10,416.92	
Death losses not due.....	13,769.00	
Total policy claims.....		24,185.92
Unpaid dividends of surplus due policy holders.....		310.96
Premiums paid in advance.....		701.48
Liabilities as to policy holders.....		\$1,353,931.36
Paid-up capital.....	\$150,000.00	
Surplus over capital.....	317,063.36	
Surplus as regards policy holders.....		467,063.36
Gross liabilities.....		\$1,820,994.72

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.....	\$74,561.40	
Premium notes, loans or liens received during year...	5,380.19	
Total.....		\$79,941.59

Deductions during the year, as follows: Notes, loans or
liens used in:

Payment of dividends to policy holders.....	\$1,101.25	
Voided by lapse.....	425.31	
Redeemed by maker in cash.....	7,658.80	
Total reduction.....		\$9,185.36
Balance of note assets December 31, 1888.....		<u>\$70,756.23</u>

EXHIBIT OF POLICIES.

POLICIES IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	3,447	\$5,044,041.32
Endowment policies.....	1,832	2,116,128.32
All other policies.....	46	131,609.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	266	356,147.00
Endowment policies.....	843	981,021.00
All other policies.....	3	15,000.00

OLD POLICIES REVIVED.

Whole life policies.....	5	7,000.00
Endowment policies.....	1	1,000.00

OLD POLICIES CHANGED AND INCREASED.

Whole life policies.....	8	9,500.00
Endowment policies.....	1	3,815.00
Total number and amount.....	6,452	\$8,665,261.64
Deduct policies ceased to be in force.....	762	995,521.00
Total in force December 31, 1888.....	5,690	<u>\$7,669,740.64</u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	3,453	\$5,032,846.32
Endowment policies in force.....	2,198	2,525,785.32
All other policies in force.....	39	111,109.00
Total number and amount.....	5,690	<u>\$7,669,740.64</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death	49	\$77,741.00
maturity (endowments).....	49	71,382.00
expiry.....	3	12,000.00
surrender.....	65	85,592.00
lapse.....	327	376,545.00
change and decrease.....	9	52,761.00
Not taken.....	260	319,500.00
Total.	762	\$995,521.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	123	\$166,642.00
Policies issued during the year.....	35	42,086.00
Total.....	158	\$208,728.00
Deduct policies ceased to be in force.....	27	47,067.00
In force in New Hampshire, December 31, 1888	131	\$161,661.00
Losses incurred and paid during 1888.....	3	\$3,412.28
Premiums collected or secured without deductions.....		\$5,400.25

AGENTS IN NEW HAMPSHIRE.

Daniel E. Howard,
George P. Dustan,
Clark S. Buswell,

Concord.
Peterborough.
Lisbon.

George H. Smalley, Lyndonville, Vt.
Charles A. Bancroft, Winchendon, Mass.

CONNECTICUT MUTUAL LIFE INSURANCE COMPANY.

[Incorporated June 15, 1846. Commenced business December 15, 1846.]

JACOB L. GREENE, *President.*

WILLIAM G. ABBOT, *Secretary.*

Principal office, Hartford, Conn.

INCOME.

New premiums without deductions.....	\$593,727.01
Renewal premiums	3,842,558.31
Total premium income.....	\$4,436,285.32
Cash received for interest on:	
Mortgage loans.....	1,934,416.54
Bonds owned and dividends on stock.....	506,805.72
Premium notes, loans or liens.....	122,963.90
Other debts due the company.....	25,920.56
Discount on claims paid in advance.....	18,973.32
Rents for use of company's property.....	378,110.60
Total income.....	\$7,423,475.96
Net or ledger assets December 31, 1887.....	55,128,568.55
Total.....	\$62,552,044.51

DISBURSEMENTS.

Cash paid for losses and additions.....	\$3,140,693.01
Premium notes, loans or liens used in payment of same.....	57,289.64
Cash paid for matured endowments and additions....	493,985.69
Premium notes, loans or liens used in payment of same.....	3,783.70
Gross amount paid for losses and endowments.....	\$3,695,752.04
Cash paid for surrendered policies.....	131,171.24
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	33,106.63
Surrender values applied in payment of premiums.....	364,950.65
Cash dividends paid policy holders, \$54,357.17; applied in payment of premiums, \$1,066,991.50.....	1,121,348.67
Premium notes, loans or liens used in payment of dividends.....	39,019.10
<i>(Total paid policy holders.....\$5,385,348.33.)</i>	

Commissions to agents.....	\$267,318.19
Traveling expenses.....	15,619.49
Medical examiners' fees..	15,809.01
Salaries of officers and office employees	112,854.72
Taxes and fees.....	294,383.47
Rent.....	5,955.00
Advertising.....	30,998.84
Profit and loss account	354,527.60
All other items, viz.:	

Law expenses, \$15,212.96; printing and supplies, \$16,- 214.98; postage, \$9,755.30; express, \$1,714.76; tele- graphing, \$522.00; expense of real estate, \$164,789.66; miscellaneous expenses, \$8,120.33.....	216,329.99
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Total disbursements during the year.....	\$6,699,144.64
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Balance December 31, 1888.....	\$55,852,899.87
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Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered	\$9,045,869.86
Loans on mortgages of real estate (first liens).....	31,630,448.60

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
N. Y., New Haven & Hartford R. R. stock..	\$3,600.00	\$1,500.00
Indianapolis National Bank stock.....	34,000.00	25,433.00
Indianapolis National Bank stock.....	10,000.00	7,500.00
Indianapolis National Bank stock.....	5,000.00	3,750.00
Indianapolis National Bank stock.....	5,000.00	3,750.00
Indianapolis National Bank stock.....	1,000.00	750.00
Indianapolis National Bank stock.....	10,000.00	7,500.00
Ætna Fire Insurance Co. stock.....	24,800.00	12,000.00
Missouri Farm Mortgage bonds.....	5,050.00	4,000.00
Chicago & Western Indiana R. R. bonds...	22,515.00	25,000.00
Suspension Bridge & Erie Jct. R. R. bonds	1,120.00	
Terre Haute & Logansport R. R. bonds....	9,500.00	
City of Evansville, Ind., water bonds	400,000.00	300,000.00
Total value and amount loaned.....	\$531,585.00	\$391,183.00

Loans on collateral securities.....	391,183.00
Premium notes, loans or liens on policies in force.....	1,953,501.18

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
First National Bank, Hartford.....	\$13,000.00	\$12,610.00
City National Bank, Hartford.....	8,000.00	7,200.00
Ætna National Bank, Hartford.....	2,500.00	2,500.00
Phoenix National Bank, Hartford.....	36,466.00	31,080.00
Charter Oak National Bank, Hartford.....	1,055.00	1,000.00
State Bank, Hartford.....	4,195.00	3,600.00
Conn. Trust & Safe Deposit Co., Hartford..	30,600.00	42,000.00
First National Bank, Litchfield, Conn.....	22,125.00	21,000.00
Fourth National Bank, New York City.....	16,000.00	22,880.00
N. Y., New Haven & Hartford R. R.....	21,000.00	50,400.00
Connecticut River R. R.....	5,000.00	9,600.00
Connecticut & Passumpsic Rivers R. R....	200,000.00	200,000.00
Massawippi Valley R. R.....	50,000.00	50,000.00
<i>BONDS.</i>		
United States.....	99,125.00	125,000.00
State of Tennessee.....	19,200.00	13,776.00
City of Jackson, Mich., water.....	99,000.00	99,000.00
“ Fort Wayne, Ind.....	75,000.00	75,000.00
“ Louisville, Ky.....	125,339.06	125,333.06
“ Mobile, Ala.....	87,500.00	65,625.00
“ Milwaukee, Wis.....	437,000.00	495,950.00
“ Quincy, Ill.....	187,500.00	187,500.00
“ Galveston, Texas.....	100,000.00	97,500.00
“ Austin, Texas.....	39,000.00	39,000.00
“ Denver, Col.....	301,500.00	301,500.00
“ Montreal, Canada.....	100,031.25	100,000.00
“ Logansport, Ind.....	72,720.00	72,720.00
“ Muncie, Ind.....	15,468.75	15,468.75
“ Omaha, sewer.....	160,825.00	160,825.00
“ San Antonio, Texas.....	31,800.00	31,800.00
“ Wichita, Kan.....	10,300.00	10,300.00
“ Duluth, Minn.....	133,125.00	133,125.00
County of Marion, Kan.....	190,550.00	190,550.00
“ Leavenworth, Kan.....	99,580.00	99,580.00
“ Sedgwick, Kan.....	144,200.00	144,200.00
“ Sumner, Kan.....	149,350.00	149,350.00
“ Warren, Ind., Court House.....	35,630.00	35,630.00
“ Allen, Ind.....	49,653.75	49,653.75
“ Mahaska, Iowa.....	7,157.50	7,157.50
“ Hancock, Ohio, Court House..	76,797.50	76,797.50
Province of Quebec.....	15,468.75	15,468.75
St. Louis Chamber of Commerce.....	472,000.00	472,000.00
Atlantic Dock Company.....	81,000.00	81,000.00
Baltimore & Ohio R. R.....	269,375.00	300,000.00
Chicago, Burlington & Quincy R. R.....	124,233.05	127,600.00
Chicago & Northwestern R. R.....	158,765.83	173,560.00
Chicago, St. Louis & New Orleans R. R....	776,562.50	866,250.00
Chicago & Western Indiana R. R.....	1,038,284.42	1,115,010.00
Chicago, Milwaukee & St. Paul R. R.....	287,340.83	290,700.00
Cleve., Col., Cin. & Indianapolis R. R.....	62,950.83	65,208.33
Cincinnati, Hamilton & Dayton R. R.....	45,288.37	45,140.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Dayton & Western R. R.....	\$32,765.00	\$33,150.00
Dayton & Michigan R. R.....	157,375.00	163,137.50
Detroit, Lansing & Northern R. R.....	121,752.50	118,500.00
Harlem River & Port Chester R. R.....	650,000.00	650,000.00
Lehigh Valley R. R.....	56,485.17	62,745.00
Michigan Central R. R.....	526,193.75	562,000.00
N. Y., Lake Erie & Western R. R.....	198,574.42	213,125.00
Northern Pacific R. R.....	507,500.00	578,750.00
Philadelphia & Reading R. R.....	124,740.38	134,000.00
St. Louis Cable & Western R. R.....	107,325.00	107,325.00
St. Paul & Northern Pacific R. R.....	374,002.50	392,445.00
St. Joseph R. R.....	350,000.00	350,000.00
Vermont Valley R. R.....	301,500.00	330,000.00
Wabash, St. Louis & Pacific R. R.....	153,739.23	135,145.00
Total values.....	<u>\$10,249,916.34</u>	<u>\$10,738,477.14</u>

Cost value of stocks and bonds.....	\$10,249,916.34
Cash deposited in banks.....	2,568,772.64
Agents' ledger balances.....	<u>13,208.25</u>
Total net or ledger assets, as per balance.....	\$55,852,899.87

OTHER ASSETS.

Interest due and accrued on :

Mortgages.....	\$728,791.86
Stocks and bonds.....	99,344.63
Collateral loans.....	5,715.50
Premium notes, loans or liens.....	168,352.81
Rents due and accrued.....	11,552.29
Market value of stocks and bonds over cost.....	488,560.80
Deferred premiums on policies in force.....	\$131,789.30
Deduct average loading (20 per cent).....	<u>26,357.86</u>

Net amount of uncollected and deferred premiums.... 105,431.44

Total assets as per books of the company.....\$57,460,649.20

ITEMS NOT ADMITTED.

Agents' balances.....	<u>13,208.25</u>
Total admitted assets.....	\$57,447,440.95

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Tables of Mortality, with 4 per cent interest..... \$50,980,765.00

Death losses due and unpaid	\$5,568.25	
Matured endowments due and unpaid	7,323.00	
Death losses and matured endowments not due	319,061.00	
Death losses and other policy claims resisted.....	35,000.00	
Total policy claims.....		\$366,952.25
Unpaid dividends of surplus due policy holders		214,370.33
Premiums paid in advance		55,266.03
Reserve on account of lapsed policies.....		271,428.00
Liabilities as to policy holders.....	\$51,888,781.61	
Surplus as regards policy holders.....	5,558,659.34	
Gross liabilities.....	\$57,447,440.95	

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.....	\$2,102,949.15	
Premium notes, loans or liens received during the year	1,211.00	
Total		\$2,104,160.15
Deductions during the year as follows: Notes, loans or liens used in:		
Payment of losses and claims.....	\$61,073.34	
Purchase of surrendered policies and voided by lapse...	34,317.63	
Payment of dividends to policy holders.....	39,019.10	
Redeemed by maker in cash.....	16,248.90	
Total reduction		150,658.97
Balance of note assets December 31, 1888.....	\$1,953,501.18	

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies	58,472	\$141,435,194.00
Endowment policies.....	5,011	9,557,304.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	2,772	7,194,684.00
Endowment policies.....	438	1,126,006.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	238	\$728,300.00
Endowment policies.....	13	20,000.00
Total number and amount.....	66,944	\$160,061,488.00
Deduct policies ceased to be in force.....	3,284	8,699,575.00
Total in force December 31, 1888.	63,660	\$151,361,913.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	58,699	\$141,652,309.00
Endowment policies in force.....	4,961	9,709,604.00
Total number and amount....	63,660	\$151,361,913.00

TERMINATED AS FOLLOWS.

By death.....	1,339	\$3,263,369.00
maturity.....	311	495,654.00
surrender.....	606	1,849,405.00
lapse.....	848	2,024,400.00
change and decrease.....		559,247.00
Not taken.	180	507,500.00
Total.....	3,284	\$8,699,575.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	630	\$1,409,739.00
Policies issued during the year.....	36	41,500.00
Total.....	666	\$1,451,239.00
Deduct policies ceased to be in force.....	32	36,528.86
In force in New Hampshire, Dec. 31, 1888	634	\$1,414,710.14
Losses and claims incurred and paid during 1888.....		\$20,528.86
Premiums collected or secured without deductions.....		\$25,989.21

AGENTS IN NEW HAMPSHIRE.

CHARLES E. STANIELS, Concord, District Superintendent of Agencies.

John C. French,
C. E. Knight,
J. A. Wellman,

Manchester.
Milford.
Hanover.

John D. Chandler,
George E. Stevens,

Nashua.
Lancaster.

EQUITABLE LIFE ASSURANCE SOCIETY OF THE UNITED STATES.

[Incorporated July 26, 1859. Commenced business July 28, 1859.]

HENRY B. HYDE, *President.*

WILLIAM ALEXANDER, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$100,000.00.

INCOME.

New premiums without deductions.....	\$5,855,932.02
Renewal premiums.....	15,707,491.09
Annuities.....	485,519.97
Total.....	<u>\$22,048,943.08</u>
Deduct amount paid for re-insurance.....	1,129.73
Total premium income.....	\$22,047,813.35
Cash received for interest on:	
Mortgage loans.....	1,741,762.20
Bonds owned and dividends on stock.....	2,440,017.61
Rents for use of society's property.....	729,384.43
Total income.....	<u>\$26,958,977.59</u>
Net or ledger assets December 31, 1887.....	79,297,955.46
Total.....	<u>\$106,256,933.05</u>

DISBURSEMENTS.

Cash paid for losses and additions.....	\$6,341,273.83
Cash paid for matured endowments and additions....	1,221,215.51
Gross amount paid for losses and endowments.....	<u>\$7,562,489.34</u>
Cash paid to annuitants.....	171,972.35
Cash paid for surrendered policies.....	1,773,332.37
Cash dividends paid policy holders.....	2,376,663.38
(Total paid policy holders.....)	<u>\$11,884,457.44</u>
Cash paid stockholders for dividends.....	7,000.00
Commissions to agents.....	2,294,587.70

Salaries and traveling expenses of agents.....	\$124,707.08
Medical examiners' fees... ..	217,027.55
Salaries of officers and office employees.....	397,895.11
Taxes and fees.....	172,084.66
Rent.....	194,001.55
Commuting commissions.....	283,129.23
Advertising	136,653.17

All other items, viz.:

Printing, stationery, clerical and legal expenses, and sundry other expenditures.....	1,118,362.64
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Total disbursements during the year..... \$16,829,906.13

Balance December 31, 1888..... \$89,427,026.92

Invested in the following:

ASSETS. AS PER LEDGER ACCOUNTS.

Book value of real estate unincumbered.....	\$22,695,389.21
Loans on mortgages of real estate (first liens).....	25,660,786.64

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
International & Great Northern bonds.....	\$3,650.00	\$3,000.00
N. Y. Central & Hudson River R. R. stock..	10,800.00	20,000.00
United States Trust Co. stock.....	17,700.00	
St. Paul, Minnesota & Manitoba bonds.....	5,900.00	4,000.00
United States bonds.....	5,425.00	5,000.00
Northwestern Telegraph bonds.....	21,400.00	15,000.00
Mercantile Trust Co. stock.....	11,250.00	5,000.00
Missouri Pacific Consolidated bonds.....	110,000.00	260,000.00
Oregon Short Line bonds.....	112,250.00	
Missouri Pacific Trust bonds.....	92,750.00	
St. Louis & Iron Mountain bonds.....	12,820.00	13,000.00
Cairo & Fulton 1st mortgage.....	5,300.00	
Louisville & Nashville R. R. stock.....	57,375.00	200,000.00
Missouri Pacific R. R. stock.....	7,375.00	
Chicago & Northwestern R. R. stock.....	10,825.00	
Lake Shore R. R. stock.....	52,062.00	
Erie Preferred R. R. stock.....	18,525.00	100,000.00
Western Union Telegraph stock.....	108,875.00	
Chicago, Milwaukee & St Paul R. R. stock.	10,350.00	
St. Paul & Duluth R. R. stock.....	9,500.00	
New Jersey Central R. R. stock.....	28,500.00	
Delaware & Hudson Canal Co. stock.....	13,250.00	
Canada Southern R. R. stock.....	5,300.00	
Texas & Pacific R. R. stock.....	15,925.00	
Pacific Mail Steamship Co. stock.....	10,950.00	33,100.00
Michigan Central R. R. stock.....	33,100.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Richmond & West Point Terminal, 6s.....	\$87,750.00	\$200,000.00
Manhattan R. R. stock.....	18,000.00	
Reading R. R. (old stock)	16,500.00	
New Jersey Central R. R. stock.....	57,000.00	
Texas & Pacific R. R. stock.....	15,925.00	
E. Tennessee, Virginia & Georgia stock...	13,800.00	
N. Y., Lake Erie & Western R. R. stock...	5,500.00	
N. Y., Susquehanna & Western R. R. stock	3,350.00	
Illinois Central R. R. stock	11,450.00	
Chicago, Burlington & Quincy R. R. stock..	5,500.00	
Delaware & Hudson Canal Co. stock.....	6,625.00	\$200,000.00
Northern Pacific R. R. stock.....	7,650.00	
Total value and amount loaned.....	\$1,042,207.00	\$825,000.00

Loans on collateral securities..... \$825,000.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Book Value.</i>	<i>Market Value.</i>
Alton & Terre Haute R. R.....	\$114,619.00	\$108,000.00
Chicago & Northwest R. R.....	599,063.00	595,375.00
Pennsylvania R. R.....	225,159.00	215,500.00
Northern Central R. R.....	126,195.00	176,000.00
Rock Island R. R.....	467,406.00	396,500.00
Mercantile Trust Co	1,351,772.00	2,923,425.00
Gold & Stock Telegraph.....	116,970.00	130,900.00
Western Union Telegraph.....	203,849.00	212,500.00
Missouri Pacific R. R.....	291,653.00	285,000.00
Chicago, St. Paul, Minn. & Omaha R. R...	206,604.00	187,000.00
New York Central R. R.....	713,213.00	722,700.00
<i>BONDS.</i>		
United States Government.....	594,812.00	648,588.00
Pennsylvania Co	1,019,940.00	1,077,500.00
West Shore Guaranteed.....	2,592,183.00	2,714,250.00
Western Union.....	1,106,359.00	1,170,000.00
Erie R. R.....	1,420,486.00	1,525,270.00
Albany & Susquehanna R. R.....	1,157,500.00	1,235,000.00
Hannibal & St. Joseph R. R.....	398,107.00	420,875.00
Chicago, Burlington & Quincy R. R.....	1,812,711.00	1,753,087.00
Northwest R. R.....	3,172,882.00	3,368,375.00
Fremont, Elkhorn & M. V. R. R.....	610,010.00	605,000.00
St. Paul, Chicago & Pacific R. R.....	355,544.00	405,900.00
St. Paul, Wisconsin & Minnesota R. R....	98,014.00	100,500.00
St. Paul, Dubuque Division, R. R.....	169,395.00	171,000.00
St. Paul, Mineral Point Division, R. R.....	54,065.00	55,550.00
St. Paul R. R.....	395,636.00	380,250.00
Fargo & Southern R. R.....	281,250.00	300,312.00
Manitoba R. R.....	318,407.00	354,000.00
Omaha R. R.....	257,631.00	298,750.00
Kansas Pacific R. R.....	62,844.00	67,500.00
Kansas City & Northern R. R.....	124,300.00	126,560.00
Missouri Pacific R. R.....	494,142.00	550,000.00

	<i>Book Value.</i>	<i>Market Value.</i>
Pacific of Missouri R. R.....	\$243,305.00	\$245,000.00
International & Great Northern R. R.....	277,500.00	273,750.00
Iron Mountain R. R.....	439,100.00	445,770.00
Cairo & Fulton R. R.....	215,534.00	212,000.00
Morris & Essex R. R.....	503,181.00	602,438.00
Morris & Essex R. R.....	61,375.00	63,000.00
Rock Island R. R.....	1,214,344.00	1,206,563.00
Atchison & Pike's Peak R. R.....	205,045.00	203,840.00
Cleveland, Columbus, Cin. & Ind. R. R....	598,250.00	650,000.00
Kalamazoo & White Pigeon R. R.....	64,424.00	61,335.00
Watertown & Rome R. R.....	438,585.00	501,240.00
Central Park, North & East River, 7s.....	57,500.00	60,500.00
Indianapolis & St. Louis R. R.....	171,625.00	169,500.00
Alton & Terre Haute R. R.....	172,201.00	175,560.00
Peoria & Pekin Union R. R.....	134,903.00	153,900.00
Cedar Falls & Minn. R. R.....	129,912.00	115,000.00
Minn. & St. Louis R. R.....	110,000.00	100,000.00
N. Y., Lackawanna & Western R. R.....	57,935.00	67,875.00
New York Central R. R.....	95,480.00	97,900.00
New York, Chicago & St. Louis R. R.....	310,635.00	325,713.00
Virginia State.....	11,371.00	11,371.00
Mississippi State.....	9,959.00	10,100.00
Elizabeth City.....	295,650.00	312,075.00
Louisville City.....	286,500.00	306,000.00
St. Louis City.....	107,625.00	116,000.00
Newark City.....	267,500.00	290,000.00
Kearney City.....	10,000.00	10,175.00
Toronto City.....	286,890.00	292,730.00
Montreal City.....	194,750.00	196,017.00
Wurtemberg Government.....	72,718.85	72,719.00
Hungarian Government.....	92,743.02	92,743.00
Swedish Government.....	93,914.35	93,914.00
Cape of Good Hope Government.....	51,847.00	51,847.00
Canton of Geneva.....	19,669.00	19,669.00
Total values.....	<u>\$28,214,692.47</u>	<u>\$30,887,411.00</u>

Book value of stocks and bonds.....	\$28,214,692.47
Cash in trust companies, at interest.....	5,366,256.64
Cash deposited in banks.....	5,349,342.67
Agents' ledger balances.....	497,909.45
All other items, including commuted commissions.....	817,649.84

Total net or ledger assets, as per balance \$89,427,026.92

OTHER ASSETS.

Interest due and accrued.....	\$767,361.47
Rents due and accrued.....	100,643.04
Market value of stocks and bonds over cost.....	2,672,718.53

Premiums due and unreported on policies in force....	\$338,949.00
Deferred premiums on policies in force.....	1,736,224.00
Total.....	\$2,075,173.00
Deduct average loading (20 per cent).....	415,034.60

Net amount of uncollected and deferred premiums.... \$1,660,138.40

Total assets as per books of the company \$94,627,888.36

ITEMS NOT ADMITTED.

Agents' balances.....	\$497,909.45
Commuted commissions.....	817,649.84

Total items not admitted..... 1,315,559.29

Total admitted assets..... \$93,312,329.07

LIABILITIES.

Net present value of all outstanding policies computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$69,982,656.00
Net value of reversionary additions..	3,618,217.00

Net re-insurance reserve..... \$73,600,873.00

Death losses and matured endowments not due..... 384,190.81

Unpaid dividends of surplus due policy holders..... 97,431.00

Liability on account of lapsed policies..... 161,432.00

Liabilities as to policy holders. \$74,243,926.81

Paid-up capital..... \$100,000.00

Surplus over capital 18,968,402.26

Surplus as regards policy holders..... 19,068,402.26

Gross liabilities..... \$93,312,329.07

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	112,295	\$416,666,692.00
Endowment policies.....	15,767	58,169,481.00
All other policies	1,392	2,546,690.00
Reversionary additions.....		5,646,699.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	32,247	126,265,559.00
Endowment policies.....	5,446	19,785,252.00
All other policies.....	473	1,488,688.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	888	\$4,143,660.00
Endowment policies.....	162	627,850.00
All other policies.....	5	28,800.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		1,593,726.00
Total number and amount.....	168,675	\$636,963,097.00
Deduct policies ceased to be in force.....	20,270	87,746,971.00
Total in force December 31, 1888.....	148,405	\$549,216,126.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force....	128,486	\$473,677,416.00
Endowment policies in force ..	18,307	67,004,371.00
All other policies in force.....	1,612	2,760,875.00
Reversionary additions in force		5,773,464.00
Total number and amount....	148,405	\$549,216,126.00

TERMINATED AS FOLLOWS.

By death.....	1,576	\$6,708,392.00
maturity.....	420	1,233,920.00
expiry.....	94	702,350.00
surrender.....	2,619	12,039,566.00
lapse.....	10,438	36,944,493.00
Not taken.....	5,123	30,118,250.00
Total.....	20,270	\$87,746,971.00

NEW HAMPSHIRE BUSINESS.

Policies in force December 31, 1887.....	354	\$829,426.00
Policies issued during the year.....	18	54,009.00
Total.....	372	\$883,435.00
Deduct policies ceased to be in force.....	42	81,235.00
In force in New Hampshire Dec. 31, 1888.	330	\$802,200.00
Losses incurred and paid during 1888.....	2	\$1,830.00
Premiums collected or secured without deductions.....		\$10,011.74

AGENTS IN NEW HAMPSHIRE.

Lemuel Hayward
Myron W. Cole,
John L. Farwell, Jr.,
W. M. Moore,
George C. Reed,
J. B. Niver,

Keene.
Hampton.
Claremont.
Portsmouth.
Concord.
Boston, Mass.

H. A. Cutter,
E. W. French,
E. S. Russell,
S. Richardson,
W. H. Bridgman,

Nashua.
Franklin.
Nashua.
Claremont.
Boston, Mass.

MANHATTAN LIFE INSURANCE COMPANY.

[Organized, 1850. Commenced business August 1, 1850.]

JAMES M. McLEAN, *President.*

HENRY Y. WEMPLE, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$100,000.00.

INCOME.

New premiums without deductions.....	\$359,597.24
Renewal premiums.....	1,095,232.53

Total premium income.....	\$1,454,829.77
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Cash received for interest on:

Mortgage loans.....	167,315.83
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Bonds owned and dividends on stock.....	81,042.33
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Premium notes, loan or liens and deferred premiums....	58,760.51
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Other debts due the company.....	199,479.62
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Discount on claims paid in advance.....	2,540.34
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Rents for use of company's property.....	9,995.88
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Total income.....	\$1,973,964.28
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Net or ledger assets December 31, 1887.....	10,919,855.70
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Total	\$12,893,819.98
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DISBURSEMENTS.

Cash paid for losses and additions.....	\$867,442.71
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Premium notes, loans or liens used in payment of same	50,546.29
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Cash paid for matured endowments and additions .. .	56,028.66
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Premium notes, loans or liens used in payment of same	3,547.34
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Gross amount paid for losses and endowments	\$977,565.00
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1888.]

LIFE INSURANCE COMPANIES.

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Cash paid to annuitants.....	\$3,166.53
Cash paid for surrendered policies.....	173,484.37
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	34,042.64
Cash dividends paid policy holders, applied in payment of premiums.....	212,360.11
Premium notes, loans or liens used in payment of dividends	5,827.76
<i>(Total paid policy holders..... \$1,406,446.41.)</i>	
Cash paid stockholders for interest or dividends	32,000.00
Commissions to agents.....	284,781.48
Salaries and traveling expenses of agents.....	25,075.45
Medical examiners' fees.....	16,938.71
Salaries of officers and office employees.....	70,478.97
Taxes and fees.....	16,442.03
Rent.....	13,000.00
Advertising.....	14,646.44
All other items, viz.:	
Expenses on real estate.....	16,453.98
Law, agency, and office expenses.....	36,407.43
Total disbursements during the year.....	<u>\$1,932,670.90</u>
Balance December 31, 1888.....	<u>\$10,961,149.08</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$322,358.83
Loans on mortgages of real estate (first liens).....	3,622,072.13

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Oregon R. R. & Navigation Co. bonds....	\$5,600.00 }	\$5,000.00
St. Louis & San Francisco R. R. bonds...	2,000.00 }	
Central Iowa R. R. bonds.....	39,600.00 }	40,062.50
Bankers & Merchants' Telegraph bonds.. }	
Union Trust Co. stock.....	30,000.00	6,000.00
Union Trust Co. stock.....	72,600.00 }	
Western Union Telegraph Co. stock.....	16,600.00 }	65,000.00
Wagner Palace Car Co. stock.....	10,000.00 }	
Weehawken Docks stock.....	100,000.00	25,000.00
Mercantile Trust Co. stock.....	215,000.00 }	
Cen. Park, North & East River R. R. stock	8,700.00 }	100,000.00
Chicago & Northwestern R. R. stock.....	11,200.00	
		8,000.00

Market Value. Amount Loaned.

Union Trust Co. stock	\$12,000.00	
Western Union Telegraph Co. stock	8,300.00	
National Citizens' Bank stock.....	1,500.00	
N. Y., New Haven & Hartford R. R. stock	12,000.00	\$29,000.00
Lehigh & Wilkesbarre Coal Co. bonds....	3,400.00	
Oregon Short Line bonds.....	3,300.00	
Consumers' Gas Works, Penn., bonds....	1,000.00	
Missouri, Kansas & Texas R. R. bonds....	12,200.00	22,000.00
Nashville, Chat. & St. Louis R. R. stock....	16,400.00	
St. Louis, Alton & Terre Haute R. R. bonds	2,100.00	10,000.00
Lehigh & Wilkesbarre Coal Co. bonds....	12,300.00	
42d St. & Grand St. Ferry R. R. stock.....	20,000.00	6,500.00
Western Union Telegraph Co. stock.....	4,100.00	28,000.00
Consolidated Gas Co. stock....	40,500.00	
Brooklyn water bonds.....	1,000.00	
United States bonds.....	540.00	
N. Y. Central & Hudson River R. R. stock	9,700.00	12,000.00
Hanover National Bank stock.....	5,500.00	
St. Paul, Minneap. & Manitoba R. R. bonds	5,900.00	
N. Y., Chicago & St. Louis R. R. bonds ...	4,500.00	29,000.00
Rome, Watertown & Ogdensb. R. R. bonds	2,200.00	
Wabash, St. Louis & Pacific R. R.....	22,200.00	
American Telegraph & Cable Co. stock..	3,600.00	
Christopher & 10th St. R. R. bonds.....	1,200.00	
N. Y. Central & Hudson River R. R. bonds	1,000.00	
Louisville & Nashville R. R. bonds.....	2,100.00	15,000.00
Missouri, Kansas & Texas R. R. bonds ...	900.00	
Oregon Short Line bonds.....	2,100.00	
Union Trust Co. stock.....	13,200.00	
Union Pacific R. R. bonds.....	119,000.00	100,000.00
Oregon R. R. & Navigation Co. stock....	92,000.00	100,000.00
Northern Pacific R. R. stock.....	12,500.00	
Northern Pacific R. R. stock.....	30,000.00	
Western Union Telegraph Co. stock.....	41,500.00	
Peoria, Decatur & Evans. R. R. bonds....	7,200.00	
Oregon Short Line bonds.....	3,300.00	
Cin., Jackson & Mackinaw R. R. bonds...	1,800.00	100,000.00
Detroit, Mack. & Marquette R. R. bonds..	1,500.00	
Pittsburg & Western R. R. bonds.....	1,500.00	
Knoxville & Ohio R. R. bonds.....	5,100.00	
Rich. & W. P. Ter. R. R. & W. Co. stock..	39,500.00	
Duluth, S. Shore & Atlantic R. R. bonds..	21,100.00	
Missouri Pacific R. R. stock.....	7,300.00	
Central R. R. of New Jersey stock.....	37,600.00	100,000.00
Duluth, S. Shore & Atlantic R. R. bonds.	9,600.00	
Knoxville & Ohio R. R. bonds.....	1,000.00	
Western Union Telegraph Co. stock.....	66,400.00	
Knoxville & Ohio R. R. bonds.....	10,300.00	
Central R. R. of New Jersey stock.....	9,400.00	
Western Union Telegraph Co. stock.....	8,300.00	100,000.00
Manhattan R. R. stock.....	18,000.00	
Missouri Pacific R. R. stock.....	73,000.00	
Cleve., Col., Cin. & Ind. R. R. stock.....	5,600.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Union Pacific R. R. bonds.....	\$119,000.00	\$100,000.00
Lake Shore & Michigan So. R. R. stock...	20,800.00	50,000.00
Detroit, Bay City & Alpena R. R. bonds...	20,100.00	
Chicago, Mil. & St. Paul R. R. bonds.....	5,000.00	
Missouri Pacific R. R. stock.....	14,600.00	
Union Pacific R. R. bonds.....	1,100.00	100,000.00
St. Louis, Iron Mt. & Southern R. R. bonds	2,600.00	
Columbus, Hock. Valley & Tol. R. R. bonds	2,400.00	
Chicago & Great Western R. R. bonds.....	8,000.00	
Philadelphia & Reading R. R. bonds	5,600.00	50,000.00
American Telegraph & Cable Co. stock....	4,000.00	
United railroads of New Jersey stock.....	2,000.00	
United States Express stock	7,400.00	
N. Y., Lake Erie & Western R. R. stock....	2,700.00	100,000.00
Delaware, Lack. & Western R. R. stock...	3,600.00	
Texas & Pacific R. R. bonds.....	3,900.00	
Missouri Pacific R. R. stock.....	7,300.00	
Chicago, Milwaukee & St. Paul R. R. stock	2,000.00	50,000.00
Cin., Ind., St. Louis & Chicago R. R. stock	9,200.00	
Manhattan R. R. stock.....	31,500.00	
Delaware & Hudson Canal Co. stock.....	6,600.00	
Lake Shore & Michigan So. R. R. stock....	10,400.00	100,000.00
Western Union Telegraph Co. stock.....	16,600.00	
St. Louis, Iron Mt. & Southern R. R. bonds	34,800.00	
Missouri Pacific R. R. stock.....	14,600.00	
Western Union Telegraph Co. stock	16,600.00	50,000.00
Toledo & Kansas City R. R. bonds.....	23,200.00	
St. Joseph & Grand Island R. R. bonds...	1,000.00	
Elizabethht'n, Lex. & Big Sandy R. R. bonds	34,000.00	
Western Union Telegraph Co. stock.....	4,100.00	100,000.00
E. Tennessee, Virg. & Georgia R. R. stock.	33,500.00	
Columbus, Hock. Valley & Tol. R. R. bonds.	4,000.00	
Delaware & Hudson Canal Co. stock.....	13,200.00	
Pullman Palace Car Co. stock.....	34,200.00	100,000.00
Western Union Telegraph Co. stock.....	41,500.00	
Chicago, St. Louis & Pittsburg R. R. stock	10,500.00	
St. Paul & Duluth R. R. stock	7,600.00	
N. Y., Providence & Boston R. R. stock...	6,200.00	100,000.00
Consolidated Gas Co. stock	16,200.00	
Western Union Telegraph Co. stock.....	83,000.00	
Missouri Pacific R. R. bonds.....	153,600.00	
Milwaukee, Lake Shore & Western stock.	64,400.00	100,000.00
Western Union Telegraph Co. stock	33,200.00	
Union Pacific R. R. bonds.....	119,000.00	
Gulf, Colorado & Santa Fe R. R. bonds....	26,100.00	
Wabash, St. Louis & Pacific R. R. bonds...	56,500.00	100,000.00
Kansas Pacific R. R. bonds.....	3,300.00	
Columbus, Hock. Valley & Tol. R. R. bonds	4,000.00	
Union Pacific R. R. stock.....	12,800.00	
Western Union Telegraph Co. stock.....	16,600.00	100,000.00
Missouri Pacific R. R. stock.....	21,900.00	
N. Y., Lake Erie & Western R. R. bonds...	150,000.00	
Missouri Pacific R. R. stock.....	29,200.00	
St. Louis, Iron Mt. & Southern R. R. bonds	34,000.00	50,000.00

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Buffalo, Rochester & Pittsburg R. R. stock	\$18,000.00	\$50,000.00
Rochester & Pittsburg R. R. bonds.....	1,500.00	
Marquette, Houghton & Onton. R. R. stock	17,400.00	
Manhattan R. R. stock.....	9,000.00	
Pittsburg & Western R. R. bonds.....	4,600.00	
Delaware, Lack. & Western R. R. stock...	7,200.00	100,000.00
Duluth, So. Shore & Atlantic R. R. bonds.	3,500.00	
Central Pacific R. R. bonds.....	76,500.00	
Denver & Rio Grande R. R. bonds.....	4,600.00	
Southern Pacific R. R. of Arizona bonds..	33,700.00	
Toledo, Ann Arb. & No. Mich. R. R. bonds	15,000.00	100,000.00
Western Union Telegraph Co. stock.....	33,200.00	
Missouri Pacific R. R. stock.....	36,500.00	
Wheeling & Lake Erie R. R. stock.....	5,900.00	
St. Louis, Iron Mt. & Southern R. R. bonds	52,200.00	
Providence & Springfield R. R. bonds.....	2,400.00	100,000.00
Jersey City bonds.....	2,200.00	
Missouri, Kansas & Texas R. R. bonds...	3,000.00	
West Shore R. R. bonds.....	2,600.00	
Louisville & Nashville R. R. bonds.....	3,000.00	
Atchison & Pike's Peak R. R. bonds.....	2,000.00	100,000.00
Metropolitan Elevated R. R. bonds.....	6,300.00	
Philadelphia & Reading R. R. bonds.....	16,100.00	
St. Louis, Arkansas & Texas R. R. bonds..	5,200.00	
Boston & Maine R. R. bonds.....	2,900.00	
N. Y., Chicago & St. Louis R. R. bonds....	900.00	100,000.00
Central R. R. of New Jersey bonds.....	1,000.00	
Pullman Palace Car Co. stock.....	1,700.00	
Western Union Telegraph Co. stock.....	33,200.00	
Missouri Pacific R. R. stock.....	7,300.00	
Chicago, Milwaukee & St. Paul R. R. stock	900.00	100,000.00
United States $4\frac{1}{2}$ per cent bonds	2,100.00	
Chicago, Burlington & Quincy bonds.....	900.00	
Tennessee Coal, Iron & R. R. Co. bonds...	4,400.00	
Old Colony R. R. bonds.....	4,400.00	
Texas & Pacific R. R. bonds.....	3,100.00	100,000.00
Chicago & Eastern Illinois R. R. stock....	9,500.00	
Northern Pacific R. R. bonds.....	9,700.00	
Rich. & W. P. Term. R. R. & W. Co. bonds.	4,800.00	
Chicago, St. Paul, Minn. & Om. R. R. stock	900.00	
Long Dock bonds.....	5,500.00	100,000.00
N. Y., Lake Erie & Western R. R. bonds..	2,300.00	
N. Y. & Northern R. R. bonds	6,200.00	
Texas & Pacific R. R. bonds.	3,200.00	
Atlantic & Pacific R. R. bonds.....	3,900.00	
International & Great North'n R. R. bonds	5,100.00	100,000.00
Missouri Pacific R. R. stock.....	700.00	
N. Y., Lake Erie & Western R. R. stock....	5,400.00	
Ohio Southern R. R. Co.....	2,000.00	
Oregon & Transcontinental Co	19,100.00	
Tennessee Coal, Iron & R. R. Co. bonds....	17,000.00	100,000.00
Norfolk & Western R. R. stock.....	5,800.00	
Oregon R. R. & Navigation Co. stock.....	18,400.00	
Western Union Telegraph Co. stock.....	24,600.00	
Nashville, Chatta. & St. Louis R. R. stock.	2,000.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Milwaukee, Lake Shore & West. R. R. stock	\$27,600.00	
West Shore R. R. bonds.....	46,800.00	
Chicago, Burlington & Quincy R. R. stock	10,900.00	\$100,000.00
N. Y., Lake Erie & Western R. R. stock...	18,000.00	
Delaware, Lacka. & Western R. R. stock..	14,400.00	
Union Pacific R. R. stock	6,400.00	
Missouri Pacific R. R. stock.....	40,100.00	
Western Union Telegraph Co. stock.....	37,300.00	100,000.00
Cairo, Arkansas & Texas R. R. bonds....	6,200.00	
St. Louis, Iron Mt. & Southern R. R. bonds	43,500.00	
Columbus, Hock.Valley & Tol. R. R. bonds	9,600.00	
Texas & Pacific R. R. bonds.....	5,800.00	
Philadelphia & Reading R. R. bonds.....	11,400.00	
Missouri, Kansas & Texas R. R. bonds	6,100.00	
St. Louis, Alton & Terre Haute R. R. stock	17,000.00	
American Telegraph & Cable Co. stock...	8,000.00	100,000.00
Missouri Pacific R. R. stock.....	7,300.00	
Manhattan R. R. stock	31,500.00	
N. Y., Lake Erie & Western R. R. stock....	8,100.00	
Chicago, Rock Island & Pacific R. R. stock	9,300.00	
Western Union Telegraph Co. stock.....	8,300.00	
E. Tennessee, Virg. & Georgia R. R. stock.	3,300.00	
Union Pacific R. R. stock.....	64,000.00	100,000.00
Kansas City & Pacific R. R. bonds.....	11,100.00	
Oregon R. R. & Navigation Co. stock.....	27,600.00	
Gulf, Colorado & Santa Fe R. R. bonds....	17,400.00	
Missouri, Kansas & Texas R. R. bonds	4,400.00	
Consolidated Gas Co. stock.....	40,500.00	
N. Y., Lake Erie & Western stock	2,700.00	
Manhattan R. R. stock.....	9,000.00	50,000.00
Oregon Improvement Co. stock.....	7,100.00	
Evansville & Indianapolis R. R. bonds....	1,000.00	
Northern Pacific R. R. stock.....	48,000.00	100,000.00
Oregon R. R. & Navigation Co. stock.....	82,800.00	
Union Pacific R. R. bonds.....	119,000.00	100,000.00
Chicago & Northwestern R. R. bonds.....	1,400.00	
Norfolk & Western R. R. bonds.....	5,400.00	
Duluth, So. Shore & Atlantic R. R. bonds..	10,500.00	
Toledo, St. Louis & Kan. City R. R. bonds.	20,400.00	
Richmond & Alleghany R. R. bonds.....	1,100.00	
Detroit, Mack. & Marquette R. R. bonds...	9,000.00	
Peoria, Decatur & Evansville R. R. stock..	2,400.00	
Burlington, Cedar Rap. & No. R. R. bonds	900.00	100,000.00
Knoxville & Ohio R. R. bonds	1,000.00	
Central R. R. of New Jersey stock.....	30,500.00	
Manhattan R. R. stock.....	13,500.00	
Rome, Watertown & Ogdens. R. R. stock .	6,800.00	
Toledo, Ann Arb. & No. Mich. R. R. bonds	11,800.00	
Oregon Improvement Co. bonds.....	1,000.00	
N. Y. & New England R. R. stock.....	4,400.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Western Union Telegraph Co. stock.....	\$24,900.00	\$100,000.00
Chicago & Northwestern R. R. stock	10,800.00	
St. Paul, Minn. & Manitoba R. R. stock ...	29,700.00	
Rich. & W. P. T. R. R. & Wareh'se Co. stock	15,800.00	
Memphis & Charleston R. R. bonds	5,200.00	
Montana Central R. R. bonds	7,700.00	100,000.00
Manhattan R. R. stock.....	27,000.00	
St. Paul, Minn. & Manitoba R. R. bonds...	3,800.00	
Galveston, Harrisburg & S. A. R. R. bonds	46,500.00	
Southern Pacific R. R. of Arizona.....	54,500.00	
Southern Pacific R. R. of California.....	22,200.00	100,000.00
Kentucky Central R. R. bonds.....	7,300.00	
Central Pacific R. R. bonds	55,500.00	
Louisville, New OrL. & Texas R. R. bonds.	34,800.00	
Galveston, Harrisburg & S. A. R. R. bonds	46,500.00	
Missouri Pacific R. R. bonds.....	163,500.00	400,000.00
St. Louis, Iron Mt. & South. R. R. bonds..	152,200.00	
Missouri Pacific R. R. stock.....	73,000.00	
Manhattan R. R. stock.....	45,000.00	
Western Union Telegraph Co. stock.....	116,200.00	
Pullman Palace Car Co. stock	34,200.00	100,000.00
Louisville, New Alb. & Chicago R. R. bonds	11,500.00	
Atchison, Topeka & Santa Fe R. R. stock..	11,600.00	
Chicago, Milwaukee & St. Paul R. R. stock	10,300.00	
Western Union Telegraph Co. stock.....	33,200.00	
Harlem R. R. stock.....	11,800.00	100,000.00
Chicago, Milwaukee & St. Paul R. R. stock	1,200.00	
Missouri Pacific R. R. stock.....	14,600.00	
Texas & Pacific R. R. bonds.....	7,800.00	
N. Y., Providence & Boston R. R. stock...	7,700.00	
Belleville & Southern Illinois R. R. stock.	15,000.00	100,000.00
N. Y., Lake Erie & Western R. R. stock...	5,400.00	
Manhattan R. R. stock.....	22,500.00	
Missouri, Kansas & Texas R. R. bonds....	2,800.00	
Western Union Telegraph Co. stock.....	9,500.00	
Missouri Pacific R. R. stock.....	7,300.00	
Lake Shore & Michigan South. R. R. stock	10,400.00	
American Telegraph & Cable Co. stock...	8,100.00	
St. Louis, Alton & Terre Haute R. R. stock	25,500.00	
Total value and amount loaned.....	\$5,462,440.00	\$4,100,562.50

Loans on collateral securities.....\$4,100,562.50

Premium notes, loans or liens on policies in force..... 906,383.26

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
Bank of Commerce, N. Y. City	\$4,460.00	\$8,900.00
New York County.....	36,805.00	44,710.00
New York City.....	247,432.50	303,765.00

*BONDS.**Cost Value. Market Value.*

United States	\$513,472.60	\$635,000.00
Virginia State.....	4,500.00	5,950.00
Mississippi State.....	10,000.00	10,000.00
New York City.....	10,778.00	12,374.00
Lake Shore & Michigan Southern R. R.....	237,277.25	248,000.00
Central Park, North & East River R. R.....	115,325.00	118,000.00
Harlem River & Port Chester R. R.....	102,500.00	111,000.00
West Shore R. R.....	92,900.00	104,000.00
Union Pacific R. R.....	176,862.63	177,000.00
Escanaba & Lake Superior R. R.....	34,800.00	34,500.00
Albany & Susquehanna R. R.....	59,000.00	61,500.00
Ohio & Mississippi R. R.....	58,000.00	59,500.00
Missouri Pacific R. R.....	111,250.00	109,000.00
Total values	<u>\$1,815,362.98</u>	<u>\$2,043,199.00</u>

Cost value of stocks and bonds.....	\$1,815,362.98
Cash in company's office.....	7,893.84
Cash deposited in banks.....	186,515.54
Total net or ledger assets, as per balance.....	<u>\$10,961,149.08</u>

OTHER ASSETS.

Interest due and accrued on:	
Mortgages.....	\$87,404.01
Stocks and bonds.....	9,210.00
Collateral loans	8,474.50
Premium notes, loans or liens.....	10,174.06
Rents due and accrued.....	779.17
Market value of stocks and bonds over cost.....	227,836.02
Premiums due and unreported on policies in force.....	\$152,754.23
Deferred premiums on policies in force.....	144,773.22
Total	<u>\$297,527.45</u>
Deduct average loading (20 per cent).....	59,505.49
Net amount of uncollected and deferred premiums....	238,021.96
Total assets as per books of the company.....	<u>\$11,543,048.80</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Tables of Mortality, with 4 per cent interest.....	\$9,983,782.00
Death losses and matured endowments not due.....	169,029.80
Unpaid dividends of surplus due policy holders.....	65,032.64
All other liabilities (estimated).....	18,500.00
Liabilities as to policy holders.....	<u>\$10,236,343.94</u>

Paid-up capital.....	\$100,000.00
Surplus over capital.....	1,206,704.86
Surplus as regards policy holders.....	<u>\$1,306,704.86</u>
Gross liabilities.....	<u><u>\$11,543,048.80</u></u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.....	\$976,428.75
Premium notes, loans or liens received during the year..	<u>31,798.23</u>
Total.....	\$1,008,226.98
Deductions during the year, as follows: Notes, loans or liens used in —	
Payment of losses and claims.....	\$54,093.63
Purchase of surrendered policies and voided by lapse....	34,042.64
Payment of dividends to policy holders.....	5,827.76
Redeemed by maker in cash.....	<u>7,879.69</u>
Total reduction.....	101,843.72
Balance of note assets December 31, 1888.....	<u><u>\$906,383.26</u></u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	11,089	\$30,635,674.00
Endowment policies.....	2,938	8,382,937.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	2,727	8,142,225.00
Endowment policies.....	946	2,840,456.00
All other policies.....		66,605.53

OLD POLICIES REVIVED.

Whole life policies.....	3	7,200.00
Endowment policies.....	11	23,000.00
Total number and amount.....	17,714	\$50,098,097.53
Deduct policies ceased to be in force.....	2,147	6,593,684.07
Total in force December 31, 1888.....	<u>15,567</u>	<u><u>\$43,504,413.46</u></u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	12,490	\$34,601,500.00
Endowment policies in force.....	3,077	8,847,532.00
All other policies in force.....		55,381.46
Total number and amount.....	<u>15,567</u>	<u>\$43,504,413.46</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	296	\$917,989.00
maturity.....	36	59,576.00
surrender.....	137	375,959.00
lapse.....	838	2,074,446.00
change and decrease.....	114	393,737.00
Not taken.....	726	2,771,977.07
Total.....	<u>2,147</u>	<u>\$6,593,684.07</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887	74	\$110,494.00
Deduct policies ceased to be in force.....	2	2,000.00
In force in New Hampshire Dec. 31, 1888..	<u>72</u>	<u>\$108,494.00</u>
Losses incurred and paid during 1888.....	2	\$2,000.00
Premiums collected or secured without deductions.....		<u>\$2,306.65</u>

AGENTS IN NEW HAMPSHIRE.

Alonzo Elliott,
Lewis Lyman,

Manchester.
Manchester.

Daniel H. Wendall,
Charles B. Clark,

Dover.
Concord.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY.

[Incorporated May 1, 1851. Commenced business August 1, 1851.]

M. V. B. EDGERLY, *President.*

JOHN A. HALL, *Secretary.*

Principal office, Springfield, Mass.

INCOME.

New premiums without deductions	\$326,813.31	
Renewal premiums	1,195,882.17	
Premiums paid by dividends, \$134,621.88; by surrendered policies, \$10,266.35.....	144,848.23	
Total	\$1,667,543.71	
Deduct amount paid for re-insurance.....	28,173.84	
Total premium income.....		\$1,639,369.87
Cash received for interest on:		
Mortgage and collateral loans.....		188,191.64
Bonds owned and dividends on stock.....		224,115.17
Premium notes, loans or liens.....		32,056.59
Other debts due the company.....		1,029.49
Discount on claims paid in advance.....		714.95
Rents for use of company's property.....		17,097.41
Total income.....		\$2,102,575.12
Net or ledger assets December 31, 1887.....		8,275,791.99
Total		\$10,378,367.11

DISBURSEMENTS.

Cash paid for losses and additions.....	\$492,294.74	
Premium notes, loans or liens used in payment of same	19,523.26	
Cash paid for matured endowments and additions.....	139,993.77	
Premium notes, loans or liens used in payment of same	3,665.23	
Gross amount paid for losses and endowments.....		\$655,477.00
Cash paid for surrendered policies.....		156,784.13
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....		29,340.93
Surrender values applied in payment of premiums, including interest, \$396.17		10,622.52

Cash dividends paid policy holders, \$15,598.64; applied in payment of premiums, \$138,790.33	\$154,388.97
Premium notes, loans or liens used in payment of dividends (Total paid policy holders..... \$1,061,788.58.)	55,175.03
Commissions to agents.....	165,894.41
Salaries and traveling expenses of agents.....	131,824.22
Medical examiners' fees.....	16,224.00
Salaries of officers and office employees.....	56,184.35
Taxes and fees	23,823.70
Rent.....	14,401.92
Advertising and printing	17,563.25
All other items, viz.:	
Postage, express, stationery, etc.....	26,543.02
Expense on real estate, taxes, fees, etc.....	27,559.76
Cash paid for premiums on securities purchased.....	8,386.41
Total disbursements during the year.....	<u>\$1,550,193.62</u>
Balance December 31, 1888.....	<u>\$8,828,173.49</u>

Invested as follows:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$475,215.08
Loans on mortgages of real estate (first liens)	2,754,265.81

COLLATERAL SECURITIES FOR CASH LOANS.

Market Value. Amount Loaned.

Springfield Gas-Light Co. stock.....	\$2,850.00	\$1,900.00
Union Paper Mfg. Co., Holyoke, Mass., stock	1,000.00	1,000.00
Lackawanna & Pitts. R. R. Co. bonds.. {	50,000.00	50,000.00
Columbus & Eastern R. R. Co. bonds... {	10,000.00	10,000.00
Del Norte Land & C. Co. bonds.....	10,000.00	10,000.00
Quincy (Mass.) Water Co. bonds..... {	25,000.00	15,000.00
Chicopee (Mass.) Water Co. bonds..... }		
Utah Southern R. R. bonds.....	3,000.00	2,400.00
Southern Florida R. R. bonds.....	55,000.00	42,000.00
Wynona Paper Co., Holyoke, Mass., stock	25,000.00	20,000.00
N. Y., Rutland & Montreal Ry. bonds	20,000.00	20,000.00
P. C. Cheney Co., Manchester, N. H., stock	25,500.00	15,900.00
Union Paper Mfg. Co., Holyoke, Mass., stock	2,200.00 }	1,800.00
Springdale Paper Co., Holyoke, Mass., stock	1,800.00 }	
American Speaking Telephone stock.... {	1,290.00	1,000.00
N. Y. & N. J. Telephone Co. stock		
Albany Card & Paper Co. stock	7,500.00	5,000.00
The Mineral Range R. R. bonds.....	12,000.00 }	10,000.00
N. Y. & N. J. Telephone Co. stock	9,000.00 }	

Market Value. Amount Loaned.

First Nat'l Bank of Billings, M. T., stock..	\$12,000.00	\$5,000.00
Streator (Ill.) Aqueduct Co. bonds.....	27,000.00	25,000.00
Southern Central R. R. bonds.....	4,680.00	2,500.00
Guaranty Savings Bank, Manchester, stock	14,000.00	10,000.00
Paid-up policy Nat'l Life Ins. Co. of U. S. A.	500.00	500.00
Claremont (N. H.) Water-works bonds	18,000.00	15,000.00
Wilton R. R. stock	7,500.00	5,000.00
Upper Coos R. R. bonds	62,500.00	50,000.00
Fairfield Paper Co. stock, Russell, Mass...	30,000.00	25,000.00
Des Moines & Kansas City Ry. Co. stock..	50,000.00	40,000.00
Woodlaw Cemet'y Ass'n, Toledo, O., bonds	20,000.00	10,000.00
Adams Express Co. stock.....	2,800.00	
Wells, Fargo Express Co. stock.....	2,800.00	15,000.00
Springfield Fire & M. Ins. Co. stock.....	18,000.00	
Morgan Env. Co., Spr'gfield, Mass., stock		
N. Y. & N. J. Telephone Co. stock.....		
Paterson Electric Light (N. J.) stock....	36,010.00	20,000.00
Hartford Manilla Co. stock.....		
United Electric Light Co. stock.....		
Boston Herald Co. stock	25,000.00	25,000.00
Conn. River Paper Co. (Mass.) stock.....	75,000.00	75,000.00
Hampden Paint & Chem. Co. stock.....	10,000.00	8,600.00
Albany Card & Paper Co. stock.....	15,000.00	5,000.00
Claremont Water-works (N. H.).....	12,600.00	10,000.00
Nashua & Lowell R. R. stock.....	45,000.00	30,000.00
Claremont Water-works (N. H.) bonds.....	7,200.00	5,000.00
Total value and amount loaned.....	<u>\$746,730.00</u>	<u>\$577,600.00</u>

Loans on collateral securities.....	\$577,600.00
Loans on company's policies as collateral	285,770.00
Premium notes, loans or liens on policies in force.....	524,271.04

SCHEDULE OF STOCKS AND BONDS.

*NATIONAL BANK STOCKS.**Cost Value. Market Value.*

Second Nat'l Bank, Springfield, Mass.....	\$6,132.50	\$7,750.00
Pynehon Nat'l Bank, Springfield, Mass....	1,975.00	3,200.00
First Nat'l Bank, Northampton, Mass.....	3,455.50	4,352.00
Franklin Co. Nat'l Bank, Greenfield, Mass.	6,305.00	6,500.00

RAILROAD AND OTHER STOCKS.

Boston & Albany R. R. Co.....	62,521.86	101,000.00
Conn. River R. R. Co.....	51,940.00	60,514.00
N. Y., N. H. & H. R. R. Co.....	15,324.50	24,000.00
Chicago, Burlington & Quincy R. R. Co....	65,504.38	55,000.00
Albany & Susquehanna R. R. Co.....	76,362.50	91,800.00
Lake Shore & Michigan Southern R. R. Co.	121,712.50	114,400.00
Chicago, Rock Island & Pacific R. R. Co...	28,825.00	29,400.00
Chicago & Northwestern R. R. Co.....	32,975.00	32,400.00
Pittsburgh, Ft. Wayne & Chicago R. R. Co.	27,400.00	30,000.00
Detroit, H. & Southwestern R. R. Co.....	74,550.00	80,000.00
St. Louis & Hannibal R. R. Co.....		4,000.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Union Paper Manufacturing Co.....	\$21,512.50	\$21,582.50
Austin (Texas) Gas Co.....	6,250.00	6,250.00
St. Joseph (Mo.) Water Co.....	11,897.75	12,500.00
Mt. Pleasant (Iowa) Water Co.....	15,400.00	20,000.00
North Poudre Land & Canal Co.....	8,147.55	8,147.55
Oregon Short Line R. R. Co		800.00
Western New York & Penn. R. R. Co.....	2,145.00	1,404.00

UNITED STATES SECURITIES.

United States bonds.....	100,000.00	108,500.00
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RAILROAD BONDS.

Burlington & Mo. R. R. Co.....	89,168.75	90,000.00
Chicago, Burlington & Quincy R. R. Co...	54,300.00	54,000.00
Chicago, Burlington & Northern R. R. Co.	144,300.00	152,250.00
Mahoning Coal R. R. Co.....	45,097.24	54,500.00
Central R. R. Co. of New Jersey.....	99,785.64	108,500.00
Southern Central R. R. Co. of New York.	53,490.00	53,406.00
Lebanon Springs (N. Y.) R. R. Co.....	48,000.00	50,000.00
Ohio & West Virginia Ry. Co.....	30,000.00	33,600.00
Oregon Short Line Ry. Co.....	21,915.00	28,000.00
Central Iowa R. R.....	76,740.00	67,820.00
St. Louis & Hannibal R. R.....	4,000.00	4,000.00
Rutland (Vt.) R. R. Co.....	30,000.00	32,400.00
Northern Pacific R. R. Co.....	36,000.00	37,800.00
Helena & Red Mountain R. R. Co.....	40,000.00	42,000.00
Cedar Rapids, Iowa Falls & Northw'n R. R.	50,000.00	46,000.00
Marquette, Houghton & O. R. R. Co.....	50,000.00	50,000.00
American Dock & Improvement Co.....	45,562.50	54,500.00
Canada Southern Ry. Co.....	22,125.00	23,375.00
Wabash, St. Louis & Pacific R. R. Co.....	42,137.50	44,000.00
Decatur & East St. Louis R. R. Co.....	24,375.00	22,000.00
Wabash, St. Louis & Pacific R. R. Co.....	21,803.18	26,250.00
Verdigris Valley, Ind. & Western R. R....	50,000.00	52,500.00
Missouri, Kansas & Texas.....	25,000.00	22,750.00
St. Louis, Iron Mt. & Southern R. R. Co..	24,082.50	21,250.00
Cincinnati, Van Wert & Mich. R. R. Co...	8,750.00	9,500.00
Boston, Hoosac T. & Western R. R. Co...	22,875.00	24,500.00
Louisville & Nashville R. R. Co.....	50,000.00	55,375.00
E. Tenn., Va. & Georgia R. R. Co.....	49,062.50	51,000.00
Long Dock Mortgage.....	50,000.00	59,000.00
Kansas City, Memphis & B. R. R. Co.....	23,750.00	23,250.00
Chicago & E. Illinois R. R. Co.....	25,000.00	29,375.00
Grand Rapids, Lansing & Detroit R. R....	100,000.00	100,000.00
St. Louis, Council Bluffs & Omaha R. R....	50,000.00	52,500.00
Des Moines & Kansas City Ry. Co.....	25,000.00	25,000.00
Nashville, Chattanooga & St. Louis Ry. Co.	50,000.00	52,500.00
St. Paul, Minn. & Manitoba Ry.....	20,531.00	20,875.00
Midland R. R. Co. of New Jersey.....	25,000.00	28,812.50
Maine Central R. R.....	49,875.00	50,000.00
Ohio, Indiana & Western Ry.....	84,647.25	79,800.00
Pittsburg, Painesville & Fairport R. R ...	47,500.00	47,500.00

CITY, COUNTY, TOWNSHIP, AND
OTHER BONDS.

	<i>Cost Value.</i>	<i>Market Value.</i>
Leavenworth County, Kansas.....	\$29,400.00	\$30,000.00
Marion County, Kansas.....	15,500.00	15,500.00
Rice County, Kansas.....	50,000.00	50,000.00
Chautauqua County, Kansas.....	37,620.00	38,000.00
Cowley County, Kansas.....	50,000.00	50,000.00
Saline County, Kansas.....	58,000.00	58,000.00
Clay County, Kansas.....	48,000.00	50,000.00
State of Kansas School District	47,274.60	47,274.60
White County, Illinois	100,000.00	105,000.00
Warren County, Illinois.....	20,900.00	22,000.00
Kankakee County, Illinois....	10,000.00	10,000.00
Cass County, Illinois.....	17,100.00	19,000.00
Perry County, Illinois.....	12,000.00	12,000.00
Saline County, Illinois.....	30,000.00	31,500.00
Lancaster County, Nebraska.....	69,970.00	70,000.00
Paulding County, Ohio.....	14,000.00	14,000.00
Oswego Township, Kansas.....	28,500.00	30,000.00
Town of Douglass, Illinois.....	32,000.00	32,000.00
Town of Kankakee, Illinois.....	8,000.00	8,000.00
Town of Edwardsville, Illinois.....	11,700.00	12,000.00
Town of Monmouth, Illinois.....	24,375.00	25,000.00
Town of Kewanee, Illinois.....	27,500.00	27,500.00
City of Burlingame, Kansas.....	4,000.00	4,000.00
City of Topeka, Kansas.....	30,000.00	31,500.00
City of Kansas.....	5,900.00	5,900.00
City of Moorhead, Minnesota.....	10,000.00	10,500.00
Western Union Telegraph.....	25,000.00	28,750.00
Freeman Mfg. Co., North Adams, Mass..	30,000.00	30,000.00

GAS AND WATER BONDS.

Wallingford Gas-Light Co., Conn.....	19,500.00	20,000.00
Council Bluffs City Water-works, Iowa...	30,000.00	30,000.00
St. Joseph Water Co., Missouri.....	100,000.00	110,000.00
Hornellsville Water Co., N. Y.....	24,375.00	26,250.00
National Water-works Co., N. Y.....	97,500.00	103,000.00
Omaha City Water-works Co., Neb.....	75,000.00	82,500.00
Leavenworth City & Ft. L. Water Co., Kan.	50,000.00	55,000.00
Knoxville Water Co., Tenn.....	34,500.00	35,000.00
Silverton Water-works Co., Colorado....	26,844.95	22,400.00
City of Fairfield Water-works Co., Iowa..	17,575.00	19,000.00
Galesburg Water Co., Illinois.....	23,575.00	5,750.00
Marseilles Water-power Co., Illinois.....	5,000.00	5,000.00
Chippewa Falls Water-works Co., Wis....	34,868.15	37,000.00
Leadville Water Co., Colorado.....	29,875.00	31,000.00
Crookston Water-works, Power & Light Co., Minn.....	45,000.00	49,500.00

Total values	\$4,010,562.25	\$4,202,213.15
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Cost value of stocks and bonds.....	\$4,010,562.25
Cash in company's office.....	13,721.40
Cash deposited in banks.....	186,767.91

Total net or ledger assets, as per balance	\$4,828,173.49
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OTHER ASSETS.

Interest due and accrued on :

Mortgages	\$55,844.91
Stocks and bonds	78,330.19
Collateral loans and loans on policies	17,966.98
Premium notes, loans or liens	16,942.28
Rents due and accrued	1,950.00
Market value of real estate over cost	80,669.25
Market value of stocks and bonds over cost	191,650.90
Premiums due and unreported on policies in force....	\$140,865.08
Deferred premiums on policies in force	226,628.23
Total	\$367,493.31
Deduct average loading (20 per cent)	73,498.66
Net amount of uncollected and deferred premiums	293,994.65
Total assets as per books of the company	\$9,565,522.65

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest

Death losses and matured endowments not due	\$31,328.00
Death losses resisted	3,211.00
Total policy claims	34,539.00
Unpaid dividends of surplus due policy holders	27,684.89
Premiums paid in advance	1,764.15
Liabilities as to policy holders	\$8,813,347.04
Surplus as regards policy holders	752,175.61
Gross liabilities	\$9,565,522.65

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887	\$529,497.47
Premium notes, loans or liens received during year	124,978.70
Total	\$654,476.17
Deductions during the year, as follows: Notes, loans or liens used in —	
Payment of losses and claims	\$23,188.49
Purchase of surrendered policies and voided by lapse	29,340.93
Payment of dividends to policy holders	55,175.03
Redeemed by maker in cash	16,436.53
Total reduction	124,140.98
Balance of note assets December 31, 1888	\$530,335.19

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	12,530	\$33,683,301.00
Endowment policies.....	4,318	9,735,031.00
All other policies.....	840	1,897,427.00
Reversionary additions		36,010.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies	2,802	9,855,850.00
Endowment policies.....	801	2,047,200.00
All other policies.....	28	104,500.00

OLD POLICIES REVIVED.

Whole life policies.....	5	7,722.00
Endowment policies.....	1	200.00

OLD POLICIES INCREASED.

Whole life policies.....	19,328.00
Endowment policies.....	4,613.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		15,733.00
Total number and amount.....	21,325	\$57,406,915.00
Deduct policies ceased to be in force.....	2,558	7,926,331.00
Total in force December 31, 1888.....	18,767	\$49,480,584.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	13,574	\$37,593,181.00
Endowment policies in force.....	4,464	10,201,984.00
All other policies in force.....	729	1,637,448.00
Reversionary additions in force..		47,971.00
Total number and amount....	18,767	\$49,480,584.00

TERMINATED AS FOLLOWS.

By death.....	213	\$510,231.00
maturity.....	103	147,049.00
expiry.....	111	260,700.00

	<i>Number.</i>	<i>Amount.</i>
By surrender	578	\$1,331,423.00
lapse.....	737	2,266,600.00
change and decrease.....		550,328.00
Not taken.....	816	2,860,000.00
Total	<u>2,558</u>	<u>\$7,926,331.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	1,506	\$2,598,774.00
Policies issued during the year	200	391,000.00
Total.....	<u>1,706</u>	<u>\$2,989,774.00</u>
Deduct policies ceased to be in force.....	127	188,111.00
In force in New Hampshire Dec. 31, 1888..	<u>1,579</u>	<u>\$2,801,663.00</u>
Losses incurred during 1888.....	<u>30</u>	<u>\$37,139.00</u>
Losses and claims paid during 1888.....	<u>26</u>	<u>\$28,786.00</u>
Premiums collected or secured without deductions.....		\$93,024.12

AGENTS IN NEW HAMPSHIRE.

CHARLES L. MELOON, Nashua, General Agent.

John C. Campbell,	Hillsboro' Br.	Frank G. Clarke,	Peterborough.
Richard B. Merrill,	Littleton.	Alpheus W. Baker,	Lebanon.
Solon A. Carter,	Concord.	Milton A. Taylor,	Nashua.
George E. Dame,	Newport.	Charles L. Harmon,	Manchester.
Moses E. Sterns,	Dover.	W. R. Porter,	Keene.
Edwin A. Jones,	New London.	Charles E. James,	L. Waterford, Vt.
James H. MacDuffee,	Dover.	George E. Varney,	Dover.
Thos. E. Varney,	Dover.	Simeon B. Folsom,	Dover.
Joab N. Patterson,	Concord.	George Kennen,	Manchester.
Edwin R. Miller,	Meriden.		

METROPOLITAN LIFE INSURANCE COMPANY.

[Incorporated June, 1866.

Commenced business January, 1867.]

JOSEPH F. KNAPP, *President.*JOHN R. HEGEMAN, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$500,000.00.

INCOME.

Total premium income.....	\$6,810,109.91
Cash received for interest on:	
Mortgage loans.....	142,672.85
Bonds owned and dividends on stock.....	89,882.67
Premium notes, loans or liens.	5,569.16
Other debts due the company.....	5,693.58
Discount on claims paid in advance.....	1,510.87
Rents for use of company's property.....	22,382.43
Profits on bonds or stocks sold	8,397.18
	<hr/>
Total income	\$7,086,218.65
Net or ledger assets December 31, 1887.....	4,686,385.12
	<hr/>
Total	\$11,772,603.77

DISBURSEMENTS.

Cash paid for losses and additions.....	\$2,547,325.44
Premium notes, loans or liens used in payment of same	2,779.84
Cash paid for matured endowments and additions.....	2,081.21
Premium notes, loans or liens used in payment of same	177.79
	<hr/>
Gross amount paid for losses and endowments.....	\$2,552,364.28
Cash paid for surrendered policies.....	33,734.11
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	4,038.35
Cash dividends paid policy holders, applied in payment of premiums.....	26,181.01
Premium notes, loans or liens used in payment of dividends	6,741.02
(Total paid policy holders.....	\$2,623,058.77.)
Cash paid stockholders for interest or dividends.....	35,000.00

1888.]

LIFE INSURANCE COMPANIES.

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Commissions to agents.....	\$1,146,067.26
Salaries and traveling expenses of agents.....	692,100.46
Medical examiners' fees.....	67,970.75
Salaries of officers and office employees.....	165,518.37
Taxes and fees.....	51,712.32
Rent	33,200.31
Commuting commissions	557,568.01
Furniture and fixtures for offices.....	47,450.65
Advertising, stationery, printing, and supplies	104,663.52
All other items, viz.:	
Law, agency, office, and sundry expenses.....	76,134.23
Total disbursements during the year.....	<u>\$5,600,444.65</u>
Balance December 31, 1888.....	<u>\$6,172,159.12</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$362,708.66
Loans on mortgages of real estate (first liens)	3,554,900.00
Loans on company's policies as collateral	8,000.00
Premium notes, loans or liens on policies in force.....	124,939.37

SCHEDULE OF BONDS.

Cost Value. Market Value.

United States.....	\$343,281.78	\$358,637.50
Peekskill, N. Y.....	25,872.60	35,000.00
Albany & Susquehanna R. R.....	22,710.00	26,800.00
Baltimore & Ohio R. R.....	54,000.00	54,000.00
Central Ohio R. R.....	102,500.00	102,500.00
Chicago, St. Paul, Minn. & Omaha R. R....	57,825.60	59,625.00
Cleveland, Col., Cin. & Ind. R. R.....	33,965.00	34,945.00
Chicago, Milwaukee & St. Paul R. R.....	142,612.50	140,842.50
Chicago & Eastern Illinois R. R.....	57,527.50	58,625.00
Chicago & Indiana Coal R. R.....	46,218.75	50,750.00
Chicago & Western Indiana R. R.....	77,125.00	78,390.00
Columbus & Toledo R. R.....	26,950.00	25,300.00
Chicago, Burlington & Northern R. R.....	52,682.50	49,000.00
Canada Southern R. R.....	53,647.50	54,625.00
Central of New Jersey R. R.....	100,750.00	108,500.00
Cincinnati, Sandusky & Cleveland R. R....	25,375.00	25,625.00
Chicago, Rock Island & Pacific R. R.....	26,968.75	26,781.25
Delaware & Hudson Canal Co.....	18,720.00	18,640.00
Detroit, Bay City & Alpena R. R.....	52,968.75	53,375.00
Duluth & Iron Range R. R.....	28,364.16	30,070.00
Fremont, Elkhorn & Miss. Valley R. R....	77,229.37	78,720.00
Gulf, Colorado & Santa Fe R. R.....	61,625.00	59,500.00
Hannibal & St. Joseph R. R.....	30,386.25	30,000.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Louisville, New Albany & Chicago R. R...	\$60,270.00	\$63,472.50
Lake Erie & Western R. R.....	9,462.64	9,765.00
Morgan's La. & Texas R. R & S. S. Co.....	26,750.00	27,750.00
Missouri Pacific R. R.....	56,312.50	55,000.00
Milwaukee, Lake Shore & Western R. R...	30,093.75	29,500.00
Mobile & Girard R. R.....	45,000.00	45,000.00
Minneapolis & St. Louis R. R.....	29,500.00	20,000.00
Northern Illinois R. R.....	26,750.00	27,000.00
Northern Pacific R. R.....	56,400.00	55,200.00
St. Joseph & Grand Island R. R.....	52,781.25	51,750.00
St. Paul & Northern Pacific R. R.....	58,692.50	60,000.00
Toledo, Ann Arbor & Grand Trunk R. R...	26,437.50	26,250.00
Terre Haute & Indianapolis R. R.....	25,625.00	25,750.00
Western New York & Pennsylvania R. R...	52,500.00	20,330.00
Total values ...	<u>\$2,075,880.55</u>	<u>\$2,077,018.75</u>
Cost value of stocks and bonds.....		\$2,075,880.55
Cash in company's office		6,229.45
Cash deposited in banks.....		39,501.09
Total net or ledger assets, as per balance.....		<u>\$6,172,159.12</u>
OTHER ASSETS.		
Interest due and accrued on :		
Mortgages		\$48,296.24
Stocks and bonds.....		13,919.18
Rents due and accrued.....		808.29
Market value of real estate over cost.....		10,616.44
Market value of stocks and bonds over cost.....		1,138.20
Premiums due and unreported on policies in force.....	\$19,362.09	
Deferred premiums on policies in force.....	35,096.42	
Total.....	<u>\$54,458.51</u>	
Deduct average loading (25 per cent).....	13,614.63	
Net amount of uncollected and deferred premiums....		<u>40,843.88</u>
Total assets as per books of the company.....		<u>\$6,287,781.35</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$4,835,100.00
Total policy claims.....	19,354.75
Unpaid dividends of surplus due policy holders.....	4,967.92
Premiums paid in advance.....	1,335.82
All other liabilities, viz.: Special reserve.....	500,000.00
Liabilities as to policy holders.....	<u>\$5,360,758.49</u>

Paid-up capital.....	\$500,000.00	
Surplus over capital.....	427,022.86	
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Surplus as regards policy holders.....		\$927,022.86
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Gross liabilities.....		\$6,287,781.35
		<hr/> <hr/>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$132,187.23	
Premium notes, loans or liens received during the year	6,489.14	
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Total		\$138,676.37
Deductions during the year, as follows: Notes, loans or liens used in —		
Payment of losses and claims.....	\$2,957.63	
Purchase of surrendered policies and voided by lapse	4,038.35	
Payment of dividends to policy holders ..	6,741.02	
	<hr/>	
Total reduction.....		13,737.00
		<hr/>
Balance of note assets December 31, 1888.....		\$124,939.37
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EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	3,400	\$4,155,272.00
Endowment policies.....	74	53,973.00
All other policies.....	50	63,545.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	144	182,140.00
Endowment policies	40	51,500.00
All other policies	1	1,795.00
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Total number and amount.....	3,709	\$4,508,225.00
Deduct policies ceased to be in force.....	330	440,448.00
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Total in force December 31, 1888	3,379	\$4,067,777.00
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	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	3,238	\$3,927,385.00
Endowment policies in force...	99	86,063.00
All other policies in force.....	42	54,329.00
	<hr/>	
Total number and amount..	3,379	\$4,067,777.00
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TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	106	\$119,014.00
maturity.....	5	2,259.00
expiry.....	4	3,803.00
surrender.....	111	164,324.00
lapse.....	94	129,548.00
change and decrease.....	2	3,000.00
Not taken.....	8	18,500.00
Total	330	\$440,448.00
Industrial policies in force December 31, 1888.	1,632,642	\$176,533,142.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887 (life).....	7	\$11,000.00
Policies issued during the year (life).....	11	12,000.00
Total	18	\$23,000.00
Deduct policies ceased to be in force.....	2	2,000.00
In force in New Hampshire Dec. 31, 1888..	16	\$21,000.00
Industrial policies in force December 31, 1888..	8,294	\$896,808.00
Losses incurred and paid during 1888.....	155	\$16,399.25
Premiums collected or secured without deductions.....		\$35,074.70

AGENTS IN NEW HAMPSHIRE.

Charles Stansfield,	Manchester.	John Lees,	Manchester.
Henry Weill,	Manchester.	Jno. H. A. O'Connor,	Concord.
Frederick B. Hamlett,	Nashua.	Jno. F. Goodwin,	Dover.
William H. Hauley,	Nashua.	John Green,	Dover.
Michael Brennan,	Nashua.	Elisha S. Huntington,	Dover.
Bernard Flanagan,	Nashua.	Eugene L. Blaisdell,	Dover.
William H. Field,	Portsmouth.	Charles A. Applebee,	Dover.
Thomas Taylor,	Portsmouth.	Joseph Michel,	Great Falls.
George A. Moore,	Portsmouth.	Edgar A. Little,	Salmon Falls.
John Liebing,	Manchester.	Dennis R. Taylor,	Manchester.
Frank L. Moltrass,	Manchester.	Callixte Lor,	Manchester.
Cyprien F. Shorey,	Manchester.	Albert G. Pratt,	Manchester.
E. Clarence Sanborn,	Manchester.	Jno. R. Kenworthy,	Manchester.
Jno. H. Ruehlmaun,	Manchester.		

MUTUAL BENEFIT LIFE INSURANCE COMPANY.

[Incorporated January 31, 1845. Commenced business April, 1845.]

AMZI DODD, *President*.EDWARD L. DOBBINS, *Secretary*.

Principal office, Newark, N. J.

INCOME.

New premiums without deductions	\$604,687.54	
Renewal premiums	3,156,131.73	
Premiums paid by dividends, \$1,089,208.72; by surrendered policies, \$207,987.51	1,297,196.23	
Annuities	25,373.38	
Total premium income		\$5,083,388.88
Cash received for interest on :		
Mortgage loans	1,248,490.57	
Bonds owned and dividends on stock.	570,406.05	
Premium notes, loans or liens.....	251,417.60	
Other debts due the company.....	190,128.62	
Rents for use of company's property (net)	27,420.46	
Total income		\$7,371,252.18
Net or ledger assets December 31, 1887		40,450,275.57
Total		\$47,821,527.75

DISBURSEMENTS.

Cash paid for losses and additions.....	\$2,755,933.45	
Premium notes, loans or liens used in payment of same	136,391.08	
Cash paid for matured endowments and additions....	122,579.09	
Premium notes, loans or liens used in payment of same	1,912.47	
Gross amount paid for losses and endowments.....		\$3,016,816.09
Cash paid to annuitants.....		22,132.09
Cash paid for surrendered policies		294,917.32
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....		126,049.81
Surrender values, including re-converted additions applied in payment of premiums		207,987.51

Cash dividends paid policy holders, \$173,867.66; applied in payment of premiums, \$1,089,208.72.....	\$1,263,076.38
Premium notes, loans or liens used in payment of dividends.....	22,821.04
<i>(Total paid policy holders.....\$4,953,800.24.)</i>	
Commissions to agents and agency expenses	529,759.79
Medical examiners' fees.....	42,020.59
Salaries of officers and office employees	121,537.64
Taxes and fees	163,669.61
Advertising, legal and miscellaneous expenses.....	72,719.08
Total disbursements during the year.....	\$5,883,506.95
Balance December 31, 1888.....	\$41,938,020.80

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Value of real estate unincumbered.....	\$1,285,426.05
Loans on mortgages of real estate (first liens).....	20,553,760.35

COLLATERAL SECURITIES FOR CASH LOANS.

	Market Value.	Amount Loaned.
Western Union Telegraph Co. stock.....	\$71,187.00	\$100,000.00
Missouri Pacific R. R. stock.....	29,500.00	
Manhattan Elevated R. R. stock.....	9,000.00	
American Telegraph & Cable Co. stock..	4,000.00	
East Tenn., Va. & Georgia R. R. bonds..	20,400.00	100,000.00
Western Union Telegraph Co. stock.....	58,625.00	
Missouri Pacific R. R. stock.....	44,250.00	
Manhattan Elevated R. R. stock.....	9,000.00	
Boston, H. T. & Western R. R. bonds.....	9,800.00	100,000.00
Central R. R. of New Jersey bonds.....	10,850.00	
Missouri Pacific R. R. stock	29,500.00	
Western Union Telegraph Co. stock.....	35,510.00	
St. Paul, Minn. & Manitoba R. R. stock..	62,370.00	100,000.00
Missouri Pacific R. R. stock.....	21,166.00	
Delaware, Lacka. & Western R. R. stock	36,062.00	
Western Union Telegraph Co. stock.....	33,500.00	
Manhattan Elevated R. R. stock	9,000.00	100,000.00
Consolidated Gas Co. stock	8,200.00	
Chicago, Rock Island & Pac. R. R. stock.	9,825.00	
Atch., Topeka & Santa Fe R. R. stock....	5,800.00	
Chicago, Mil. & St. Paul R. R. bonds.....	2,520.00	100,000.00
Lake Shore & Mich. Southern R. R. bonds	124,000.00	
Illinois Central R. R. bonds.....	118,200.00	
Western Union Telegraph Co. stock.....	41,875.00	
Missouri Pacific R. R. stock.....	7,375.00	100,000.00
St. Paul, Minn. & Manitoba R. R. stock..	69,300.00	
United States Express Co. stock.....	3,800.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
N. Y., Lake Erie & Western R. R. bonds.	\$32,210.00	
Oregon & Transcontinental R. R. bonds.	30,300.00	
Missouri Pacific R. R. bonds.....	22,000.00	
Cleve., Columbus, Cin. & Ind. R.R. bonds	6,031.00	
N. Y., Ontario & Western R. R. bonds....	11,150.00	
Union Pacific R. R. bonds.....	14,280.00	
St. Joseph & Grand Island R. R. bonds..	5,175.00	
Delaware & Hudson Canal Co. bonds....	2,820.00	
Chicago & Milwaukee R. R. bonds.....	1,325.00	
Illinois Central R. R. stock.....	11,450.00	\$200,000.00
Chicago & Northwestern R. R. stock....	21,650.00	
Canada Southern R. R. stock.....	10,600.00	
Western Union Telegraph Co. stock.....	33,500.00	
Delaware, Lacka. & Western R. R. stock	14,425.00	
Chi., St. Paul, Minn. & O. R. R. stock...	9,250.00	
Missouri Pacific R. R. stock.....	7,375.00	
N. Y. Central & H. River R. R. stock....	10,800.00	
Pullman Palace Car Co. stock.....	17,150.00	
Delaware & Hudson Canal Co. stock....	13,250.00	
Chicago, Mil. & St. Paul R. R. stock....	10,325.00	
Manhattan Elevated R. R. stock.....	18,000.00	
Western Union Telegraph Co. stock....	16,750.00	50,000.00
Missouri Pacific R. R. stock.....	3,171.00	
Oregon Short Line R. R. bonds.....	2,240.00	
Missouri Pacific R. R. stock.....	73,750.00	
Western Union Telegraph Co. stock.....	100,500.00	
St. Paul, Minn. & Manitoba R. R. stock..	59,400.00	200,000.00
Manhattan Elevated R. R. stock.....	18,000.00	
Pullman Palace Car Co. stock.....	308,700.00	200,000.00
St. Paul, Minn. & Manitoba R. R. stock.	123,750.00	100,000.00
Missouri Pacific R. R. stock.....	25,812.00	
Western Union Telegraph Co. stock.....	16,750.00	
St. Paul, Minn. & Manitoba R. R. stock.	39,600.00	100,000.00
United States Express Co. stock.....	30,400.00	
Duluth, S. S. & Atlantic R. R. bonds....	11,310.00	
Missouri Pacific R. R. stock.....	22,125.00	
Western Union Telegraph Co. stock.....	41,875.00	
St. Paul, Minn. & Manitoba R. R. stock..	49,500.00	100,000.00
Manhattan Elevated R. R. stock.....	9,000.00	
West Shore R. R. bonds.....	123,752.00	100,000.00
Delaware, Lacka. & Western R. R. stock	43,275.00	
Western Union Telegraph Co. stock.....	67,000.00	
American Express Co. stock.....	11,200.00	
Chicago & Indiana Coal R. R. stock....	9,000.00	
Mar., Houghton & Ontonagon R. R. stock	9,000.00	200,000.00
Oregon Short Line R. R. bonds.....	47,040.00	
Cleve., Columbus, Cin. & Ind. R.R. bonds	35,340.00	
Mil., Lake Shore & Western R. R. bonds	23,250.00	
St. Paul, Minn. & Manitoba R. R. stock..	19,800.00	
United States Express Co. stock.....	38,000.00	
Western Union Telegraph Co. stock.....	50,250.00	100,000.00
Missouri Pacific R. R. stock.....	11,062.00	
St. Louis & Iron Mountain R. R. bonds..	4,250.00	

	Market Value.	Amount Loaned.
United States 4 per cent bonds.....	\$9,525.00	
Pullman Palace Car Co. stock.....	64,312.00	
Missouri Pacific R. R. stock.....	36,875.00	\$100,000.00
Chicago & Northwestern R. R. stock....	10,825.00	
Chicago, Bur. & Quincy R. R. bonds.....	2,775.00	
Chicago, Rock Isl. & Pacific R. R. stock..	29,475.00	
Western Union Telegraph Co. stock.....	25,125.00	
Canada Southern R. R. bonds.....	3,740.00	50,000.00
Oregon Short Line R. R. bonds.....	2,240.00	
Chicago, Rock Isl. & Pacific R. R. bonds..	12,855.00	
Duluth, So. Shore & Atlantic R. R. bonds	21,750.00	
Central Railroad of N. J. bonds.....	7,595.00	
Illinois Central R. R. stock.....	5,725.00	
N. Y., Lacka. & Western R. R. stock.....	20,600.00	
Chicago & Northwestern R. R. stock.....	14,072.00	100,000.00
Western Union Telegraph Co. stock.....	25,125.00	
Chicago, Mil. & St. Paul R. R. stock.....	1,032.00	
Chicago, Rock Isl. & Pacific R. R. stock..	6,190.00	
Canada Southern R. R. stock.....	5,300.00	
Nashville, Chatt. & St. Louis R. R. bonds	26,350.00	
St. Louis, Alton & T. H. R. R. bonds.....	7,560.00	
American Telegraph & Cable Co. stock..	2,000.00	
St. Louis & San Francisco R. R. stock....	22,650.00	
Canada Southern R. R. stock.....	5,300.00	
St. Louis, Alton & T. H. R. R. stock.....	8,500.00	100,000.00
Manhattan Elevated R. R. stock.....	13,500.00	
Lake Shore & Mich. Southern R. R. stock	4,160.00	
East Tenn., Virginia & Ga R. R. stock....	9,900.00	
Delaware, Lacka. & Western R. R. stock	7,212.00	
Chicago, Rock Isl. & Pacific R. R. stock..	1,474.00	
Missouri Pacific R. R. stock.....	14,750.00	
West Shore R. R. bond.....	1,049.00	1,070.68
City of St. Paul bond.....	1,000.00	
Missouri Pacific R. R. stock.....	44,250.00	
Pullman Palace Car Co. stock.....	34,300.00	
Oregon Railway & Navigation Co. stock	13,837.00	100,000.00
East Tenn., Virginia & Ga. R. R. stock....	26,400.00	
Flint & Pere Marquette R. R. stock.....	19,000.00	
Philadelphia & Reading R. R. bonds.....	67,688.00	60,000.00
St. Paul, Minn. & Manitoba R. R. bonds.	7,110.00	
Canada Southern R. R. stock.....	6,890.00	
Canadian Pacific R. R. stock.....	15,900.00	
Chicago, Rock Island & Pac. R. R. stock.	1,572.00	
Pullman Palace Car. Co. stock.....	34,300.00	
Missouri Pacific R. R. stock.....	29,500.00	100,000.00
Western Union Telegraph Co. stock.....	16,750.00	
Galveston, Har. & S. A. R. R. bonds.....	14,000.00	
St. Paul, Minn. & Manitoba R. R. bonds.	8,640.00	
Delaware, Lacka. & Western R. R. stock	158,675.00	250,000.00
Western Union Telegraph Co. stock	159,125.00	

Market Value. Amount Loaned.

Essex Co. National Bank, Newark, stock.	\$8,750.00	\$45,000.00
Newark City National Bank stock	20,020.00	
National Newark Banking Co. stock.....	5,600.00	
Second National Bank, Newark, stock....	2,520.00	
National State Bank, Newark, stock.....	5,602.00	
Manufac. National Bank, Newark, stock..	3,600.00	
Merchants' National Bank, Newark, stock	1,620.00	
American Ins. Co., Newark, scrip.....	11,232.00	
Citizens' Gas-Light Co., Newark, stock...	13,800.00	
United Railroads of N. J. stock.....	11,000.00	
Yonkers Gas-Light Co. stock.....	2,500.00	50,000.00
Newark City Ice Co. stock.....	3,750.00	
Consumers' Coal Co., Newark, stock.....	3,600.00	
Lehigh & Wilkesbarre R. R. bonds.....	4,000.00	
Morris & Essex R. R. bonds.....	7,920.00	
Newark Gas-Light Co. stock	15,975.00	
Escanaba & Lake Superior R. R. bonds..	13,500.00	
Chicago, Mil. & St. Paul R. R. bonds....	8,160.00	
Consolidated Gas Co. stock	41,000.00	
Chicago, Rock Island & Pac. R. R. stock	29,475.00	100,000.00
Canada Southern R. R. stock	5,300.00	
Delaware, Lacka. & Western R. R. stock	14,425.00	
Louisville & Nashville R. R. bonds	10,900.00	
St. Paul, Minn. & Manitoba R. R. stock..	128,700.00	
Citizens' Gas-Light Co., Newark, stock...	60,720.00	
New York Central R. R. stock.....	32,400.00	
Chicago & Northwestern R. R. stock.....	14,100.00	
Illinois Central R. R. stock.....	11,450.00	
Western Union Telegraph Co. stock.....	12,563.00	
St. Louis & San Francisco R. R. stock...	26,400.00	100,000.00
Pullman Palace Car Co. stock	8,575.00	
N. Y., N. Haven & Hartford R. R. stock.	6,900.00	
Delaware, Lacka. & Western R. R. stock	14,425.00	
Delaware, Lacka. & Western R. R. stock	79,338.00	
Chicago, Rock Island & Pac. R. R. stock	19,650.00	
Western Union Telegraph Co. stock....	12,562.00	
Western Union Telegraph Co. bonds	15,150.00	
National State Bank, Newark, stock.....	675.00	
National Newark Banking Co. stock.....	840.00	
Merchants' Fire Ins. Co., Newark, stock..	3,740.00	50,000.00
Firemen's Ins. Co., Newark, stock	645.00	
The Columbus, O., Board of Trade bonds	26,250.00	
Delaware, Lacka. & Western R. R. stock.	43,275.00	
Consolidated Gas Co. stock.....	8,200.00	
Central Railroad of New Jersey bonds ...	9,765.00	
Gulf, Col. & Santa Fe R. R. bonds.....	1,750.00	
Lake Shore & Mich. Southern R. R. stock	114,400.00	
Delaware, Lacka. & Western R. R. stock	7,212.00	

Total value and amount loaned	\$4,624,945.00	\$3,603,245.68
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Loans on collateral securities.....	\$3,603,245.68
Loans on company's policies as collateral	730,397.37
Premium notes, loans or liens on policies in force.....	4,254,443.28

<i>SCHEDULE OF BONDS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
United States	\$100,000.00	\$108,500.00
Essex County, N. J.....	1,172,000.00	1,378,450.00
Union County, N. J.....	35,000.00	35,450.00
Buchanan County, Mo.....	500,000.00	512,500.00
Lincoln County, Mo.....	148,000.00	150,960.00
Pettis County, Mo.....	104,500.00	106,590.00
Tippecanoe County, Ind.....	75,000.00	75,000.00
Van Buren County, Iowa.....	33,500.00	33,500.00
City of Newark, N. J.....	2,375,000.00	2,571,000.00
“ Orange, N. J.....	60,000.00	69,850.00
“ New Brunswick, N. J.....	14,000.00	14,700.00
“ Elizabeth, N. J.....	1,030,000.00	1,030,000.00
“ Rahway, N. J.....	49,401.33	49,401.33
“ South Bend, Ind.....	153,000.00	154,530.00
“ Lafayette, Ind... ..	160,000.00	195,200.00
“ Erie, Pa.....	152,000.00	165,680.00
“ Springfield, Ill.....	114,300.00	114,300.00
“ Toledo, Ohio.....	218,000.00	251,220.00
“ Sandusky, Ohio.....	100,000.00	106,000.00
“ Cleveland, Ohio... ..	450,000.00	481,000.00
“ Saginaw, Mich.....	100,000.00	100,000.00
“ Colorado Springs, Col.....	50,000.00	51,500.00
Township of Montclair, N. J.....	320,000.00	329,600.00
“ West Orange, N. J.....	128,500.00	149,100.00
“ East Orange, N. J.....	167,500.00	167,500.00
Grand Rapids & Indiana R. R.....	50,000.00	60,000.00
The Belvidere Delaware R. R.....	750,000.00	750,000.00
Chicago, Burlington & Quincy R. R.....	150,000.00	144,000.00
Perth, Amboy & Woodbridge R. R.....	100,000.00	100,000.00
Central R. R. of New Jersey.....	200,000.00	212,000.00
Chicago, Rock Island & Pacific R. R.....	100,000.00	104,000.00
Freehold & Jamesburg Agricultural R. R.	100,000.00	100,000.00
Shamokin, Sunbury & Lewisburg R. R...	40,000.00	41,200.00
New York Central R. R.....	20,500.00	21,320.00
Wilkesbarre & Scranton R. R.....	100,000.00	100,000.00
New York, Susquehanna & Western R. R.	100,000.00	93,000.00
Phil., Wilmington & Baltimore R. R....	250,000.00	250,000.00
Philadelphia & Erie R. R.....	500,000.00	500,000.00
Cleveland, Painesville & Ashtabula R. R.	5,000.00	5,500.00
West Shore	437,500.00	448,437.50
Total values.....	<u>\$10,712,701.33</u>	<u>\$11,331,988.83</u>
Par value of bonds	\$10,712,701.33	
Cash in company's office	156,013.41	
Cash deposited in banks.....	543,864.35	
Agents' ledger balances.....	894.75	
Premiums in transit, since received	97,274.23	
Total net or ledger assets, as per balance.....	<u>\$41,938,020.80</u>	

OTHER ASSETS.

Interest due and accrued on :

Mortgages.....	\$315,001.46
Stocks and bonds.....	143,802.79
Collateral loans	20,750.24
Premium notes, loans or liens.....	116,997.19
Market value of stocks and bonds over par	619,287.50
Premiums due and unreported on policies in force....	\$108,533.39
Deferred premiums on policies in force	343,335.75
Total	\$451,869.14
Deduct average loading (20 per cent).....	90,373.83
Net amount of uncollected and deferred premiums....	361,495.31
Total assets as per books of the company	\$43,515,355.29

ITEMS NOT ADMITTED.

Agents' balances.....	894.75
Total admitted assets.....	\$43,514,460.54

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$39,712,908.00
Death losses and matured endowments not due.....	\$211,613.07
Death losses and other policy claims resisted.....	17,000.00
Total policy claims	228,613.07
Unpaid dividends of surplus due policy holders.....	213,359.27
Premiums paid in advance.....	3,900.99
Liabilities as to policy holders	\$40,158,781.33
Surplus as regards policy holders	3,355,679.21
Gross liabilities.....	\$43,514,460.54

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$4,242,886.85
Premium notes, loans or liens received during the year	362,323.71
Total.....	\$4,605,210.56

Deductions during the year, as follows: Notes, loans or
liens used in —

Payment of losses and claims.....	\$138,303.55	
Purchase of surrendered policies and voided by lapse	126,049.81	
Payment of dividends to policy holders ...	22,821.04	
Redeemed by maker in cash	63,592.88	
Total reduction.....		\$350,767.28
Balance of note assets December 31, 1888.....		<u>\$4,254,443.28</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	42,291	\$115,342,773.00
Endowment policies.....	10,364	24,741,047.00
All other policies.....	2,707	7,105,583.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	4,032	10,954,540.00
Endowment policies	2,447	5,569,181.00
All other policies	876	2,236,792.00

OLD POLICIES REVIVED.

Whole life policies.....	21	48,700.00
Endowment policies	4	13,000.00

OLD POLICIES INCREASED.

Whole life policies.....	1	3,000.00
Endowment policies.....	7	25,769.00

ADDITIONS BY DIVIDENDS.

Whole life policies		35,919.00
Endowment policies		24,340.00

Total number and amount.....	62,750	\$166,100,644.00
Deduct policies ceased to be in force	4,796	12,602,021.00
Total in force December 31, 1888	57,954	<u>\$153,498,623.00</u>
Annuity bonds in force (not included in above)...	59	<u>\$24,526.00</u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	43,513	\$118,351,760.00
Endowment policies in force	11,544	27,635,395.00
All other policies in force.....	2,897	7,511,468.00
Total number and amount	57,954	\$153,498,623.00

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	920	\$2,843,994.00
maturity	63	125,476.00
expiry.....	593	1,569,343.00
surrender.....	1,590	4,239,926.00
lapse	994	2,219,999.00
Not taken.....	636	1,603,283.00
Total	4,796	\$12,602,021.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887	302	\$527,329.00
Policies issued during the year	22	32,023.00
Total.....	324	\$559,352.00
Deduct policies ceased to be in force.....	15	24,982.00
In force in New Hampshire Dec. 31, 1888....	309	\$534,370.00
Losses incurred and paid during 1888.....		\$15,482.00
Premiums collected or secured without deductions.....		\$12,833.59

AGENTS IN NEW HAMPSHIRE.

Sidney M. Hedges,	Boston, Mass.	Almon D. Tolles,	Great Falls.
Walter W. Hodges,	Boston, Mass.	Edgar A. Leighton,	Great Falls.
Charles F. Dunlap,	Portland, Me.	Dexter Chase,	Lancaster.
Erastus A. Crawford,	Great Falls.	Darwin E. Dudley,	Keene.

MUTUAL LIFE INSURANCE COMPANY.

[Incorporated April, 1842. Commenced business February 1, 1843.]

RICHARD A. MCCURDY, *President.*WILLIAM J. EASTON, *Secretary.*

Principal office, New York City.

INCOME.

New and renewal premiums without deductions:.....	\$19,143,227.17
Annuities.....	301,080.58
Total premium income	\$19,444,307.75
Cash received for interest on :	
Mortgage loans.....	2,860,366.48
Bonds owned and dividends on stock.....	2,364,979.53
Other debts due the company.....	451,592.64
Rents for use of company's property.....	384,580.40
Profits on bonds or stocks sold.....	710,105.72
Total income.....	\$26,215,932.52
Net or ledger assets December 31, 1887.....	110,061,718.68
Total.....	\$136,277,651.20

DISBURSEMENTS.

Cash paid for losses and additions.....	\$7,231,665.07
Cash paid for matured endowments and additions....	2,195,091.30
Gross amount paid for losses and endowments.....	\$9,426,756.37
Cash paid to annuitants	49,702.44
Cash paid for surrendered policies and additions.....	3,099,251.68
Cash dividends paid policy holders, applied in payment of premiums.....	2,151,839.73
(Total paid policy holders	\$14,727,550.22.)
Commissions to agents	3,170,578.96
Salaries and expenses of law department.....	166,593.19
Medical examiners' fees and salaries.....	195,857.18
Salaries of officers and office employees.....	343,604.33
Taxes and fees.....	305,273.50
Rent.....	85,671.00
Advertising	124,247.16

All other items, viz.:

Exchange, postage, printing, stationery, and sundry other expenses.....	\$580,281.99
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Total disbursements during the year.....	\$19,699,657.53
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Balance December 31, 1888	\$116,577,993.67
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Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cash value of real estate unincumbered.....	\$11,753,125.34
Loans on mortgages of real estate (first liens)	49,617,874.02

COLLATERAL SECURITIES FOR CASH LOANS.

Par Value. Market Value.

American Express Co. stock.....	\$2,500.00	\$2,750.00
Atlantic Trust Co. stock.....	22,500.00	67,500.00
Bank of Minnesota, St. Paul, stock.....	5,000.00	7,000.00
Bank of New York stock.....	12,500.00	28,750.00
Brooklyn Crosstown R. R. stock.....	9,975.00	15,960.00
Brooklyn Trust Co. stock.....	20,000.00	62,000.00
Canadian Pacific R. R. stock.....	15,000.00	7,950.00
Canada Southern R. R. stock.....	10,000.00	5,200.00
Central R. R. of New Jersey stock.....	1,000,000.00	940,000.00
Central Ohio R. R. stock.....	75,000.00	75,000.00
Central Crosstown R. R. stock.....	20,000.00	28,000.00
Central Trust Co. stock.....	73,000.00	438,000.00
Chicago, Rock Island & Pacific R. R. stock.	44,000.00	43,120.00
Chicago & Northwestern R. R. stock.....	346,100.00	383,688.00
Chi., St. Paul, Minn. & Omaha R. R. stock..	37,500.00	34,875.00
Chicago, Mil. & St. Paul R. R. stock.....	140,000.00	144,200.00
Cin., Ind., St. Louis & Chicago R. R. stock..	200,000.00	184,000.00
Continental Fire Insurance Co. stock.....	2,000.00	3,500.00
Consolidated Gas Co. stock.....	90,000.00	73,800.00
Delaware & Hudson Canal Co. stock	106,000.00	139,920.00
Delaware, Lackawanna & W. R. R. stock...	315,000.00	453,600.00
Dunlieth & Dubuque Bridge Co. stock.....	330,000.00	363,000.00
Evansville & Terre Haute R. R. stock.....	45,000.00	38,250.00
Farmers' Loan & Trust Co. stock.....	10,000.00	54,000.00
First National Bank stock.....	100,000.00	2,000,000.00
Forty-second St. & Grand St. Ferry Co. stock	22,900.00	45,800.00
Fulton Municipal Gas Co. stock.....	5,000.00	6,500.00
Georgia R. R. & Banking Co. stock.....	93,500.00	187,000.00
Illinois Central R. R. stock.....	10,000.00	11,400.00
Lake Shore & Mich. Southern R. R. stock...	12,700.00	16,070.00
Lehigh Valley R. R. stock.....	65,000.00	70,850.00
Lehigh Coal & Navigation Co. stock.....	30,000.00	30,600.00
Long Island R. R. stock.....	25,000.00	23,000.00
Long Island Loan & Trust Co. stock.....	2,500.00	4,000.00

	<i>Par Value.</i>	<i>Market Value.</i>
Manhattan Elevated R. R. stock.....	\$50,000.00	\$45,000.00
Merchants' Nat'l Bank of Sav., Ga., stock..	7,500.00	11,250.00
Mercantile Trust Co. stock.....	2,500.00	5,250.00
Mexican Telegraph stock	2,500.00	4,750.00
Missouri Pacific R. R. stock.....	50,000.00	36,500.00
Morgan's La. & Texas R. R. & S. S. stock...	100,000.00	100,000.00
Nassau Trust Co. stock.....	10,000.00	12,500.00
National Bank of the Republic stock.....	100,000.00	150,000.00
National Park Bank stock.....	10,500.00	18,900.00
N. Y. Central & Hudson River R. R. stock...	40,000.00	43,200.00
N. Y., N. H. & Hartford R. R. stock.....	20,000.00	48,000.00
N. Y. Life & Trust Co. stock.....	4,000.00	23,200.00
N. Y. Guar. & Ind. Co. stock.. ..	6,800.00	7,480.00
North Hudson Railway stock.....	100,125.00	100,125.00
Oregon Railway & Navigation Co. stock...	30,000.00	27,600.00
Pennsylvania R. R. stock.....	87,700.00	93,839.00
Providence & Worcester R. R. stock.....	25,000.00	62,500.00
Pullman Palace Car Co. stock.....	150,000.00	256,500.00
Rensselaer & Saratoga R. R. stock.....	20,000.00	34,000.00
Second Avenue R. R. stock.....	10,000.00	9,500.00
St. Paul, Minn. & Manitoba R. R. stock.....	20,000.00	19,800.00
St. Louis & San Francisco R. R. stock.....	40,000.00	44,800.00
Southwestern R. R. of Georgia stock... ..	240,000.00	312,000.00
United N. J. R. R. & Canal Co. stock.....	2,700.00	5,967.00
United States Trust Co. stock.....	1,300.00	7,670.00
Union Trust Co. stock.....	5,000.00	29,500.00
Western Union Telegraph Co. stock	10,000.00	8,300.00
West Jersey & Atlantic R. R. stock.....	10,000.00	9,500.00
Atlanta & West Point R. R. bonds.	440,900.00	440,900.00
Atehison, Col. & Pacific R. R. bonds.....	31,000.00	31,930.00
Baker Township, Kansas, bonds.....	1,000.00	1,000.00
Boston, Hoosac Tunnel & Western bonds..	18,000.00	17,640.00
Brooklyn, N. Y., bonds.....	14,000.00	21,000.00
Burlington & Cedar Rapids bonds.....	5,000.00	4,000.00
Canada Southern R. R. bonds.....	9,000.00	9,810.00
Central Pacific R. R. bonds.....	1,208,000.00	1,208,000.00
Central R. R. of New Jersey bonds.....	26,000.00	30,810.00
Chesapeake & Ohio R. R. bonds.....	20,000.00	14,000.00
Chicago, St. Louis & N. O. R. R. bonds.....	200,000.00	230,000.00
Chicago, Rock Island & Pacific R. R. bonds	47,000.00	50,290.00
Chicago, Burlington & Quincy R. R. bonds.	25,000.00	24,000.00
Chicago & Northwestern R. R. bonds.....	21,000.00	26,800.00
Chicago, Mil. & St. Paul R. R. bonds.....	149,000.00	163,760.00
Cleveland & Canton R. R. bonds.....	200,000.00	180,000.00
Cloud Co., Kansas, bonds.....	4,000.00	4,320.00
Coffey Co., Kansas, bonds	2,000.00	2,080.00
Dakota & Great Southern R. R. bonds.....	23,000.00	20,700.00
Denver & Rio Grande R. R. bonds.	5,000.00	3,850.00
Detroit, Monroe & Toledo R. R. bonds	10,000.00	13,000.00
Duluth & Iron Range R. R. bonds.....	10,000.00	9,700.00
Duluth & Manitoba R. R. bonds... ..	10,000.00	10,000.00
Erie Railroad bonds.....	70,000.00	91,180.00
E. Tenn., Virginia & Georgia R. R. bonds ...	53,000.00	54,060.00
Escanaba & Lake Superior bonds.....	10,000.00	11,200.00

	<i>Par Value.</i>	<i>Market Value.</i>
Evansville & Ind. R. R. bonds.....	\$120,000.00	\$120,000.00
Fort Worth & Denver City bonds.....	75,000.00	67,500.00
Georgia, State of, bonds.....	10,000.00	11,000.00
Georgia Pacific R. R. bonds.....	60,000.00	63,000.00
Greenpoint Ferry Co. bonds.....	25,000.00	25,000.00
Gulf, Col. & Sante Fe R. R. bonds.....	10,000.00	8,700.00
Hannibal & St. Joseph R. R. bonds.....	75,000.00	90,000.00
Houston & Texas Central R. R. bonds.....	7,000.00	8,050.00
Illinois Central R. R. bonds.....	235,000.00	239,700.00
Int. & Great Northern R. R. bonds.....	39,000.00	27,300.00
Iowa Falls & Sioux City R. R. bonds.....	160,500.00	210,255.00
Iowa Midland R. R. bonds.....	9,000.00	11,880.00
Jackson County, Mo., bonds.....	2,000.00	2,040.00
James River R. R. bonds.....	2,000.00	2,080.00
Jersey City, N. J., bonds.....	1,000.00	1,100.00
Kansas Pacific R. R. bonds.....	4,000.00	4,480.00
Kansas Township, Mo., bonds.....	2,000.00	2,000.00
Kentucky Central R. R. bonds.....	500,000.00	350,000.00
Knoxville & Ohio R. R. bonds.....	60,000.00	61,800.00
Lake Shore & Mich. Southern R. R. bonds..	45,000.00	55,350.00
Lehigh & Wilkesbarre R. R. bonds.....	22,000.00	25,300.00
Louisville & Nashville R. R. bonds.....	10,000.00	11,100.00
Louisville, New Albany & Chi. R. R. bonds.	5,000.00	4,600.00
Louisville, N. O. & Texas R. R. bonds.....	600,000.00	360,000.00
Memphis, Tenn., bonds.....	5,000.00	4,900.00
Memphis & Charleston R. R. bonds.....	60,000.00	71,400.00
Metropolitan Elevated R. R. bonds.....	18,000.00	20,700.00
Michigan Central R. R. bonds.....	20,000.00	26,000.00
Milwaukee & Northern R. R. bonds.....	5,000.00	5,300.00
Milwaukee, Lake Shore & W. R. R. bonds..	10,000.00	9,000.00
Missouri Pacific R. R. bonds.....	28,000.00	30,800.00
Midland of N. J. R. R. bonds.....	12,000.00	13,800.00
Mississippi & Tennessee R. R. bonds.....	750,000.00	750,000.00
Missouri, Kansas & Texas R. R. bonds.....	2,000.00	1,800.00
Morgan's Louisiana & Texas R. R. bonds...	5,000.00	5,950.00
Mutual Union Telegraph Co. bonds.....	10,000.00	9,800.00
New York, Chicago & St. Louis R. R. bonds.	65,000.00	59,150.00
New York & Harlem R. R. bonds.....	14,000.00	18,200.00
N. Y., Susquehanna & Western R. R. bonds.	40,000.00	38,000.00
Northern Pacific R. R. bonds.....	124,000.00	139,320.00
Oregon Improvement Co. bonds.....	5,000.00	5,200.00
Oregon Railway & Navigation Co. bonds...	31,000.00	32,520.00
Oregon & California R. R. bonds.....	80,000.00	68,000.00
Oregon Short Line R. R. bonds.....	10,000.00	11,200.00
Ottawa County, Kansas, bonds.....	7,000.00	7,560.00
Philadelphia & Reading R. R. bonds.....	62,000.00	55,060.00
Pittsburg & Western R. R. bonds.....	25,000.00	19,000.00
Poughkeepsie, N. Y., bonds.....	1,000.00	1,100.00
Rich. & W. P. Ter. Warehouse Co. bonds....	510,000.00	494,700.00
Richmond & Danville R. R. bonds.....	45,000.00	41,800.00
Roseville, Illinois, bonds.....	1,000.00	1,000.00
Savannah, Florida & Western R. R. bonds..	360,000.00	360,000.00
Schuylkill River R. R. bonds.....	67,000.00	69,680.00
Silver Springs, Ocala & Gulf R. R. bonds..	50,000.00	37,500.00

	<i>Par Value.</i>	<i>Market Value.</i>
Sheridan Township, Kansas, bonds.....	\$3,000.00	\$3,000.00
South Carolina State bonds.....	2,000.00	2,000.00
South Carolina R. R. bonds.....	15,000.00	14,400.00
St. Louis, Iron Mt. & Southern bonds.....	45,000.00	38,250.00
St. Paul, Minn., Cable bonds.....	50,000.00	45,000.00
St. Paul & Duluth R. R. bonds	635,000.00	635,000.00
St. Paul & Sioux City R. R. bonds.....	5,000.00	6,100.00
St. Paul, Minn. & Manitoba R. R. bonds....	20,000.00	23,400.00
Syracuse, Binghampton & N. Y. R. R. bonds	4,000.00	5,400.00
Tennessee State bonds.....	64,000.00	46,720.00
Texas & Pacific R. R. bonds.....	3,000.00	2,700.00
Toledo, Ann Arbor & No. Mich. R. R. bonds	25,000.00	24,500.00
Trinity Church Corporation bonds.....	70,000.00	70,000.00
Utah Southern R. R. bonds	31,000.00	32,240.00
Virginia Midland R. R. bonds.....	153,000.00	154,380.00
West Shore R. R. bonds.....	65,000.00	67,600.00
Western R. R. of Alabama bonds.....	447,000.00	447,000.00
Western Union Collateral Trust bonds.....	15,000.00	15,150.00
Wilson County, Kansas, bonds.....	1,000.00	1,030.00
Total values.....	<u>\$13,218,700.00</u>	<u>\$15,996,229.00</u>

Loans on collateral securities..... \$10,033,000.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Par Value.</i>	<i>Market Value.</i>
Albany & Susquehanna R. R.....	\$20,800.00	\$31,824.00
Chicago, Milwaukee & St. Paul R. R.....	308,000.00	304,040.00
Chicago & Northwestern R. R.....	450,000.00	634,500.00
Massawippi Valley R. R.....	35,000.00	35,728.00
Morris & Essex R. R.....	25,000.00	36,000.00
New York & Harlem R. R.....	444,250.00	1,043,988.00
N. Y., N. H. & Hartford R. R.....	106,500.00	255,600.00
Naugatuck R. R.....	80,000.00	176,000.00
N. Y., Providence & Boston R. R.....	204,000.00	421,015.00
Pennsylvania R. R.....	341,500.00	365,405.00
Pittsburg, Fort Wayne & Chicago R. R.....	10,000.00	15,000.00
United N. J. R. R. & Canal Co.....	27,400.00	60,554.00
Real Estate Ex. & Auction Room.....	1,000.00	1,000.00
<i>BONDS.</i>		
United States.....	2,260,000.00	2,870,500.00
Augusta, Ga.....	15,000.00	16,962.00
Atlanta, Ga.....	77,000.00	83,608.00
Atchison Co., Kan	118,000.00	125,073.00
Boston, Mass.....	400,000.00	478,000.00
Brooklyn, N. Y.....	438,000.00	635,470.00
Butler Co., Ohio.....	75,000.00	77,652.00
Council Bluffs, Iowa.....	40,000.00	40,800.00
Columbus, Ohio.....	50,000.00	51,205.00
District of Columbia.....	322,100.00	336,374.00
Duluth, Minn.....	50,000.00	52,540.00
Des Moines, Iowa.....	47,000.00	48,076.00

	<i>Par Value.</i>	<i>Market Value.</i>
Douglas Co., Neb.....	\$58,000.00	\$60,134.00
Elizabeth, N. J.....	336,000.00	302,400.00
Franklin Co., Ky.....	62,000.00	64,170.00
Franklin Co., Ohio.....	50,000.00	53,210.00
Georgia State.....	1,153,000.00	1,201,600.00
Guelph, Ontario, Can.....	97,333.33	103,173.33
Galveston, Texas.....	333,000.00	327,343.00
Hancock Co., Ohio.....	35,000.00	36,281.00
Hennepin Co., Minn.....	200,000.00	202,000.00
Hudson Co., N. J.....	300,000.00	341,190.00
Hyde Park Village, Ill.....	50,000.00	52,705.00
Jackson, Mich.....	65,000.00	68,458.00
Jersey City, N. J.....	516,000.00	575,404.00
Joliet, Ill.....	50,000.00	52,690.00
Lake, Illinois.....	100,000.00	102,750.00
Lincoln, Neb.....	100,000.00	98,810.00
Miss. State Treas. Certificate of Deposit....	20,000.00	20,000.00
Milwaukee Co., Wis.....	88,000.00	95,084.00
Minneapolis, Minn.....	200,000.00	203,500.00
Memphis, Tenn.....	100,000.00	98,200.00
Mamaroneck, N. Y.....	30,000.00	32,046.00
Marion Co., Ind.....	40,000.00	40,392.00
Newark, N. J.....	410,000.00	513,988.00
New Brunswick, N. J.....	108,300.00	112,314.00
Nashville, Tenn.....	370,000.00	401,456.00
New York City.....	500,000.00	652,800.00
Orange, N. J.....	25,000.00	25,520.00
Owen Co., Ky.....	100,000.00	101,670.00
Omaha, Neb.....	215,000.00	215,815.00
Ramsey Co., Minn.....	300,000.00	304,933.00
St. Paul, Minn.....	575,000.00	600,010.00
Savannah, Ga.....	30,000.00	30,249.00
Shawnee Co., Kan.....	30,000.00	32,256.00
San Francisco, Cal.....	339,500.00	353,080.00
San Antonio, Tex.....	150,000.00	157,380.00
Sioux City, Iowa.....	50,000.00	50,210.00
Sedgwick Co., Kan.....	200,000.00	205,000.00
Tennessee State.....	300,000.00	210,000.00
Woodbury Co., Iowa.....	125,000.00	125,000.00
British Consols.....	99,422.81	99,422.81
Victorian Government.....	24,250.00	24,250.00
Certificate of Dep. of State Bank, St. Louis	25,000.00	25,000.00
Atlantic & Gulf R. R.....	217,000.00	246,751.00
Albany & Susquehanna R. R.....	1,000,000.00	1,278,100.00
Atlanta & Charlotte Air Line R. R.....	269,000.00	317,278.00
Bleecker St. & Fulton Ferry R. R.....	35,000.00	40,068.00
Baltimore & Ohio R. R.....	100,000.00	117,010.00
Cedar Rapids, Ia. Falls & Northw'n R. R....	248,000.00	241,470.00
Chicago & St. Louis R. R.....	74,000.00	86,210.00
California Southern R. R.....	300,000.00	315,000.00
Covington & Lexington R. R.....	100,000.00	100,420.00
Charlotte, Columbia & Augusta R. R.....	88,000.00	96,078.00
Cleve., Col., Cin. & Ind. R. R.....	283,000.00	362,752.00
Cincinnati & Springfield R. R.....	250,000.00	291,835.00

	<i>Par Value.</i>	<i>Market Value.</i>
Cin., Ham. & Dayton R. R.....	\$350,000.00	\$400,763.00
Chicago & Southwestern R. R.....	150,000.00	182,190.00
Chicago, Milwaukee & St. Paul R. R.....	1,856,000.00	2,042,964.00
Central R. R. & Banking Co. of Ga.....	695,000.00	751,365.00
Chesapeake & Ohio R. R.....	461,000.00	504,657.00
Chicago & Eastern Illinois R. R.....	50,000.00	58,000.00
Columbus & Toledo R. R.....	130,000.00	151,021.00
Chicago & Northwestern R. R.....	1,840,000.00	2,128,826.00
Chicago, St. Paul, Minn. & Omaha R. R....	500,000.00	592,500.00
Cleveland, Lorain & Wheeling R. R.....	210,000.00	241,592.00
Columbus & Indiana Central R. R.....	104,000.00	116,577.00
Central Park, N. & E. River R. R.....	100,000.00	119,580.00
Cin., Ind., St. Louis & Chicago R. R.....	200,000.00	187,340.00
Citizens' Gas-Light Co., Brooklyn.....	50,000.00	50,625.00
Corrigan St. Railway Co., Kansas City....	50,000.00	50,000.00
Chateaugay Railway Co.....	200,000.00	229,000.00
Deleware & Hudson Canal Co.....	387,000.00	534,577.00
Duluth & Manitoba R. R.....	100,000.00	101,000.00
East Tenn., Va. & Ga. R. R.....	100,000.00	105,450.00
Eastern Railway Co. of Minn.....	250,000.00	253,125.00
Erie R. R.....	97,000.00	125,836.00
Elmira, Cortlandt & Northern R. R.....	300,000.00	304,500.00
Evansville & Terre Haute R. R.....	250,000.00	285,525.00
Flint & Pere Marquette R. R.....	550,000.00	655,160.00
Georgia Pacific R. R.....	64,000.00	67,200.00
Georgia R. R. & Banking Co.....	400,000.00	416,230.00
Galveston, Har. & San Antonio R. R.....	134,000.00	140,030.00
Grand Rapids, Lansing & Detroit R. R....	250,000.00	247,900.00
Gulf, Colorado & Santa Fe R. R.....	250,000.00	285,000.00
Housatonic R. R.....	50,000.00	52,915.00
Hackensack Water Co.....	200,000.00	205,500.00
Hannibal & St. Joseph R. R.....	500,000.00	595,100.00
Houston & Texas R. R.....	285,000.00	344,825.00
Ind., Decatur & Springfield R. R.....	196,000.00	197,470.00
Ind., Bloom. & Western R. R.....	115,000.00	130,111.00
Ind. & St. Louis R. R.....	400,000.00	454,571.00
James River Valley R. R.....	350,000.00	364,000.00
Jeffersonville, Mad. & Ind. R. R.....	98,000.00	113,229.00
Jefferson R. R.....	84,000.00	84,000.00
Kansas City, St. Joseph & C. Bluffs R. R...	400,000.00	480,880.00
Louisville, N. Alb. & Chicago R. R.....	105,000.00	110,000.00
Lake Shore & Michigan Southern R. R....	1,500,000.00	1,855,800.00
Lake Erie & Western R. R.....	250,000.00	263,750.00
Long Branch Water Supply Co.....	100,000.00	103,670.00
Morgan's La. & Texas R. R. & S. S.....	250,000.00	299,375.00
Michigan Central R. R.....	450,000.00	549,000.00
Morris & Essex R. R.....	100,000.00	124,030.00
Mobile & Ohio R. R.....	100,000.00	109,500.00
Memphis & Charleston R. R.....	400,000.00	488,000.00
Mobile & Girard R. R.....	200,000.00	180,680.00
Montgomery & Eufaula R. R.....	154,000.00	165,365.00
Minneapolis & St. Louis R. R.....	154,000.00	127,173.00
Milwaukee & Northern R. R.....	300,000.00	319,500.00
Minneapolis Gas-Light Co.....	200,000.00	218,000.00

	<i>Par Value.</i>	<i>Market Value.</i>
Minneapolis Street Railway Co.....	\$130,000.00	\$140,036.00
Municipal Gas-Light Co. of Yonkers.....	27,000.00	27,000.00
Norfolk & Petersburg R. R.....	20,000.00	22,392.00
Nashville & Decatur R. R.....	74,000.00	87,542.00
N. Y., Lackawanna & Western R. R.....	1,000,000.00	1,295,000.00
N. Y., Chicago & St. Louis R. R.....	504,000.00	468,640.00
Nashville, Chattanooga & St. Louis R. R....	304,000.00	377,057.00
N. Y. Central & Hudson River R. R.....	500,000.00	659,600.00
N. Y., Pennsylvania & Ohio R. R.....	55,000.00	58,988.00
National Water Works Co., Kansas City...	94,000.00	98,230.00
Ohio & Mississippi R. R.....	77,000.00	88,658.00
Pratt Coal & Iron Co.....	15,000.00	17,436.00
Pittsburg Junction R. R.....	400,000.00	440,000.00
Richmond & Danville R. R.....	500,000.00	565,000.00
Richmond, Fork River & Chesapeake R. R.	287,000.00	303,468.00
Rome, W. & Ogdensburg R. R.....	278,000.00	295,322.00
San Antonio & Arkansas Pass R. R.....	200,000.00	170,000.00
St. Paul & Duluth R. R.....	50,000.00	55,755.00
St. Paul City Railway Co.....	285,000.00	313,016.00
St. Paul Water Supply Co.....	26,500.00	27,502.00
Syracuse, Binghampton & N. Y. R. R.....	238,000.00	321,300.00
South Carolina R. R.....	500,000.00	477,500.00
South Side of Virginia R. R.....	46,000.00	47,220.00
South Georgia & Florida R. R.....	16,000.00	18,682.00
Staten Island Rapid Transit R. R.....	21,000.00	23,604.00
Texas & New Orleans R. R.....	600,000.00	697,140.00
Trinity Church Corporation.....	100,000.00	101,730.00
Union Pass Railway Co. of Philadelphia....	27,000.00	29,222.00
Valley R. R. of Ohio.....	29,000.00	35,403.00
Virginia Midland R. R.....	250,000.00	265,000.00
Virginia & Tennessee R. R.....	71,000.00	76,845.00
Western R. R. of Alabama.....	112,000.00	119,840.00
Western Transit Co.....	400,000.00	417,320.00
West Shore R. R.....	800,000.00	822,000.00
Wheeling & Lake Erie R. R.....	250,000.00	248,125.00
Warren & Franklin R. R.....	33,000.00	38,382.00

Total values..... \$42,207,856.14 \$48,616,704.14

Par value of stocks and bonds.....	\$42,207,856.14
Cash in company's office and deposited in banks.....	2,813,277.60
Bills receivable.....	127,393.85
Agents' ledger balances.....	25,466.72

Total net or ledger assets, as per balance.....\$116,577,993.67

OTHER ASSETS.

Interest due and accrued....	\$922,440.58
Market value of stocks and bonds over par.....	6,408,848.00

Premiums due and unreported on policies in force.....	\$558,027.29
Deferred premiums on policies in force.....	1,614,844.02
Total.....	\$2,172,871.31
Deduct average loading (20 per cent).....	434,574.26

Net amount of uncollected and deferred premiums... \$1,738,297.05

Total assets as per books of the company.....\$125,647,579.30

ITEMS NOT ADMITTED.

Agents' balances.....	\$25,466.72
Bills receivable.....	127,393.85

Total items not admitted 152,860.57

Total admitted assets.....\$125,494,718.73

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$117,027,372.00
Death losses and matured endowments not due.....	404,582.58
Premiums paid in advance.....	105,423.35
Liability under non-forfeiture clause.....	69,701.00
Liabilities as to policy holders.....	\$117,607,078.93
Surplus as regards policy holders.....	7,887,639.80
Gross liabilities.....	\$125,494,718.73

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies....	108,893	\$319,823,771.00
Endowment policies.....	31,923	80,737,605.00
All other policies.....	14	7,700.00
Reversionary additions.....		27,014,283.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	26,524	83,843,453.00
Endowment policies.....	4,554	11,740,780.00
All other policies.....	2	625.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	1,114	\$3,299,610.00
Endowment policies.....	339	818,850.00

OLD POLICIES INCREASED.

Whole life policies.	10,000.00
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OLD POLICIES CHANGED.

Whole life policies.....	45	105,000.00
Endowment policies.....	19	58,000.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		3,469,716.00
Total number and amount.....	173,427	\$530,929,393.00
Deduct policies ceased to be in force.....	15,237	48,878,814.00
Total in force December 31, 1888.	158,190	\$482,050,579.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	125,176	\$371,637,551.00
Endowment policies in force.....	33,000	83,839,995.00
All other policies in force.....	14	7,700.00
Reversionary additions in force.	26,565,333.00	
Total number and amount....	158,190	\$482,050,579.00

TERMINATED AS FOLLOWS.

By death.....	2,072	\$7,293,326.00
maturity.....	869	2,227,226.00
expiry.....	11	41,750.00
surrender.....	2,387	9,632,833.00
lapse.....	5,647	14,896,223.00
change and decrease.....	64	745,483.00
Not taken.	4,187	14,041,973.00
Total	15,237	\$48,878,814.00

BUSINESS IN NEW HAMPSHIRE.

	<i>Number.</i>	<i>Amount.</i>
Policies in force December 31, 1887.....	1,054	\$1,957,987.00
Policies issued during the year.....	436	773,000.00
Total.....	1,490	\$2,730,987.00
Deduct policies ceased to be in force.....	43	58,000.00
In force in New Hampshire, Dec. 31, 1888	1,447	\$2,672,987.00
Losses incurred and paid during 1888.....	12	\$17,500.00
Premiums collected or secured without deductions		\$107,445.99

AGENTS IN NEW HAMPSHIRE.

CHENEY, SHURTLEFF & CHENEY, Manchester, General Agents.

(Fred N. Cheney, William H. Shurtleff, R. H. Cheney.)

A. P. Rein,	Concord.	R. W. Price,	Laconia.
H. E. Haines,	Wolfeborough.	A. P. Hayes,	Portsmouth.
Moses A. Ferrin,	Plymouth.	A. T. Pierce,	Dover.
W. Arthur Lane,	Manchester.	Samuel R. Cairns,	Manchester.
Fred M. Thomas,	Manchester.	Frank H. Burpee,	Manchester.
E. M. Abbott,	Berlin Mills.	E. A. Lane,	Pittsfield.
Chester Abbott,	Woodsville.	C. C. Davis,	Walpole.
F. H. Robinson,	Groveton.	J. B. McKay,	Nashua.
A. N. Bernstein,	Manchester.	George B. Prescott,	Dover.
F. R. Drake,	North Hampton.	Charles E. Foote,	Penacook.
H. S. Osgood,	Claremont.	George Olcott,	Charlestown.
John B. Pike,	Lebanon.	James B. Shapleigh,	Great Falls.
A. J. Barrett,	Littleton.	F. W. Cheney,	Newport.
A. H. Crowell,	Derry Depot.	T. W. Saben,	Hinsdale.
E. G. Leach,	Franklin Falls.	James E. Barnard,	Franklin.
L. Jackman,	Concord.	D. W. Goodnow,	Keene.
Jesse B. Twiss,	East Jaffrey.	Charles E. Trafton,	Portsmouth.
Louis Stevens,	Manchester.	Geo. M. Stevens & Son,	Lancaster.

NATIONAL LIFE INSURANCE COMPANY.

[Incorporated November 13, 1848. Commenced business February 1, 1850.]

CHARLES DEWEY, *President*.GEORGE W. REED, *Secretary*.

Principal office, Montpelier, Vermont.

INCOME.

New premiums without deductions.....	\$409,520.13	
Renewal premiums.....	871,653.24	
Total premium income.....		\$1,281,173.37
Cash received for interest on:		
Mortgage loans.....	119,307.17	
Bonds owned and dividends on stock.....	113,925.53	
Premium notes, loans or liens.....	13,613.07	
Other debts due the company.....	5,760.62	
Rents for use of company's property.....	7,701.27	
Profit and loss (net).....	56.35	
Total income.....		\$1,541,537.38
Net or ledger assets December 31, 1887.....	4,280,944.99	
Total.....		\$5,822,482.37

DISBURSEMENTS.

Cash paid for losses and additions.....	\$290,735.16	
Premium notes, loans or liens used in payment of same	473.87	
Cash paid for matured endowments and additions....	32,710.00	
Gross amount paid for losses and endowments.....		\$323,919.03
Cash paid for surrendered policies....		134,801.72
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....		5,589.39
Cash dividends paid policy holders, applied in payment of premiums.....		155,006.92
Premium notes, loans or liens used in payment of dividends		179.60
(Total paid policy holders....	\$679,496.66)	
Commissions to agents.....		205,881.24
Salaries and traveling expenses of agents.....		16,285.47
Medical examiners' fees.....		19,268.53

Salaries of officers and office employees.....	\$23,644.33
Taxes and fees.....	23,472.79
Rent, less \$9,909.58 received under sub-lease.....	9,909.58
Furniture and fixtures for offices.....	6,844.78
Advertising, printing, and stationery.....	13,260.51
All other items, viz.:	
Legal services, \$538.29; postage and express, \$3,448.57.	3,986.86
Total disbursements during the year.....	<u>\$942,050.75</u>
Balance December 31, 1888.....	<u>\$4,880,431.62</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered	\$186,470.67
Loans on mortgages of real estate (first liens)	2,253,991.76

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
National Bank of Rutland stock.....	\$5,500.00	\$10,500.00
National Car Co., St. Albans, stock.....	7,500.00	6,000.00
Lane Mfg. Co., Montpelier, stock.....	70,875.00	31,500.00
Total value and amount loaned.....	<u>\$83,875.00</u>	<u>\$48,000.00</u>
Loans on collateral securities.....		48,000.00
Loans on company's policies as collateral.....		195,241.48
Premium notes, loans or liens on policies in force.....		45,427.47

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>		<i>Par Value.</i>	<i>Market Value.</i>
First National Bank, Montpelier, Vt.....	\$26,000.00	\$33,280.00	
Montpelier National Bank.....	2,800.00	4,200.00	
<i>BONDS.</i>			
United States.....	129,000.00	165,385.00	
State of Maine.....	1,000.00	1,015.00	
“ “ New Hampshire.....	11,000.00	14,410.00	
“ “ Missouri.....	11,000.00	12,650.00	
“ “ Nebraska.....	17,025.00	17,535.75	
City of Boston, Mass.....	10,000.00	11,270.00	
“ “ Lawrence, Mass.....	20,000.00	22,200.00	
“ “ Worcester, Mass.....	26,000.00	21,400.00	
“ “ Fitchburg, Mass.....	60,000.00	65,400.00	
“ “ Chelsea, Mass.....	45,000.00	49,030.00	
“ “ Beverly, Mass.....	25,000.00	25,125.00	
“ “ Burlington, Vt.....	25,000.00	26,250.00	

		<i>Par Value.</i>	<i>Market Value.</i>
City of	Minneapolis, Minn.....	\$32,000.00	\$33,767.50
"	" Stillwater, Minn.....	41,000.00	45,100.00
"	" Winona, Minn.....	3,000.00	3,255.00
"	" Faribault, Minn.....	6,000.00	6,075.00
"	" St. Cloud, Minn.....	10,000.00	10,150.00
"	" La Suer, Minn.....	5,000.00	5,150.00
"	" Indianapolis, Ind.....	25,000.00	30,250.00
"	" Appleton, Wis.....	9,000.00	9,378 75
"	" Fond du Lac, Wis.....	20,000.00	21,650 00
"	" Springfield, Ill.....	18,200.00	19,838.00
"	" Canton, Ill.....	13,500.00	14,377.50
"	" Crystal Lake, Ill.....	5,000.00	5,750.00
"	" Irving Park, Ill.....	4,500.00	4,972.50
"	" Burlington, Ia.....	20,000.00	20,523.50
"	" Creston, Ia.....	14,000.00	14,350.00
"	" Nevada, Ia.....	12,000.00	12,360.00
"	" Spencer, Ia.....	5,500.00	5,610.00
"	" Marion, Ia.....	22,000.00	23,210.00
"	" Corning, Ia.....	15,000.00	15,600.00
"	" Niles, Mich.....	13,500.00	14,377.50
"	" Omaha, Neb.....	20,000 00	22,000.00
"	" Kearney, Neb.....	10,000.00	10,600.00
"	" Red Cloud, Neb.....	10,000.00	10,100.00
"	" Piqua, Ohio.....	10,000.00	11,600.00
"	" Meriden, Conn.....	41,000.00	43,888.00
"	" Lincoln, Neb.....	50,000.00	51,500.00
"	" Lincoln, Neb., warrants ...	44,514.76	45,405.05
"	" Sioux City, Ia.....	20,800.00	21,280.50
"	" Algona, Ia.....	8,000.00	8,240.00
"	" Council Bluffs, Ia.....	9,000.00	9,077.40
"	" Fort Dodge, Ia.....	11,000.00	11,541.00
"	" Independence, Ia.....	10,000.00	10,590.00
"	" Danville, Ill.....	16,000.00	16,187.20
"	" Newton, Kan.....	12,000.00	12,000.00
"	" Joplin, Mo.....	6,500.00	6,760.00
County of	Douglas, Neb.....	20,000.00	20,400.00
"	" Dickinson, Ia.....	10,000.00	10,500.00
"	" Adair, Ia.....	10,000.00	10,050.00
"	" Wyandotte, Kan.....	21,000.00	21,420.00
"	" Haskell, Kan.....	14,000.00	14,100.00
Town of	Montpelier, Vt.....	57,400.00	58,261.00
"	" St. Albans, Vt.....	3,000.00	3,051.00
"	" Essex, Vt.....	6,000.00	6,178.20
"	" Newfane, Vt.....	8,000.00	8,240.00
"	" Jericho, Vt.....	10,000.00	10,300.00
"	" Highgate, Vt.....	30,000.00	30,900.00
"	" Hyde Park, Vt.....	35,000.00	35,700.00
"	" Wolcott, Vt.....	11,000.00	11,200.00
"	" Johnson, Vt.....	7,000.00	7,070.00
"	" Troy, Vt.....	3,000.00	3,030.00
"	" Woodstock, Vt.....	6,500.00	6,500.00
"	" Greensboro', Vt.....	3,500.00	3,675.00
"	" Arlington, Vt.....	15,000.00	15,375.00
"	" Underhill, Vt.....	17,000.00	17,510.00

	<i>Par Value.</i>	<i>Market Value.</i>
Town of Jay, Vt.....	\$7,000.00	\$7,140.00
“ “ Swanton, Vt.....	60,500.00	61,407.50
“ “ Sheldon, Vt.....	24,000.00	24,360.00
“ “ Jamaica, Vt.	4,000.00	4,160.00
“ “ Bakersfield, Vt.....	5,000.00	5,100.00
“ “ Williston, Vt	2,400.00	2,424.00
“ “ Fairfax, Vt.....	1,100.00	1,111.00
Village of St. Albans, Vt.....	52,000.00	53,040.00
“ “ Montpelier, Vt	20,000.00	20,100.00
“ “ Brandon, Vt.....	27,000.00	27,000.00
“ “ St. Johnsbury, Vt.....	6,000.00	6,000.00
“ “ West Randolph, Vt	12,000.00	12,000.00
“ “ North Bend, Neb.....	3,000.00	3,150.00
Iowa, Kansas, and Nebraska school.....	143,535.00	150,797.00
Nebraska county warrants.....	215,344.77	219,651.66
Vermont Marble Co.....	20,000.00	20,300.00
Total values.....	<u>\$1,866,119.53</u>	<u>\$1,986,866.51</u>
Par value of stocks and bonds.....		\$1,866,119.53
Cash in company's office.		3,681.70
Cash deposited in banks.....		69,681.30
Agents' ledger balances (\$185,228.55 since received).....		211,817.71
Total net or ledger assets, as per balance		<u>\$4,880,431.62</u>

OTHER ASSETS.

Rents due and accrued on :	
Mortgages	\$57,612.38
Stocks and bonds	20,741.30
Collateral loans.....	1,641.25
Premium notes, loans or liens.....	6,246.20
Market value of stocks and bonds over cost.....	120,746.98
Premiums due and unreported on policies in force ...	\$19,454.06
Deferred premiums on policies in force.....	113,936.64
Total.....	<u>\$133,390.70</u>
Deduct average loading (20 per cent).....	26,698.14
Net amount of uncollected and deferred premiums....	106,692.56
Total assets as per books of the company	<u>\$5,194,112.29</u>

ITEMS NOT ADMITTED.

Agents' balances	26,589.16
Total admitted assets.....	<u>\$5,167,523.13</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....		\$4,068,244.07
Death losses due and unpaid.....	\$1,000.00	
Death losses and matured endowments not due.....	8,000.00	
Total policy claims.....		9,000.00
Unpaid dividends of surplus due policy holders.....		31,323.61
Premiums paid in advance.....		3,777.23
Extra reserve on life rate endowment policies.....		260,908.92
Liabilities as to policy holders.....		\$4,373,253.83
Surplus as regards policy holders.....		794,269.30
Gross liabilities.....		<u>\$5,167,523.13</u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$37,946.81	
Premium notes, loans or liens received during the year	29,189.56	
Total.....		\$67,136.37
Deductions during the year, as follows: Notes, loans or liens used in —		
Payment of losses and claims.....	\$473.87	
Purchase of surrendered policies and voided by lapse.	5,589.39	
Payment of dividends to policy holders.....	179.60	
Redeemed by maker in cash.....	15,466.04	
Total reduction.....		21,708.90
Balance of note assets December 31, 1888.....		<u>\$45,427.47</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	5,882	\$15,090,953.00
Endowment policies.....	8,461	9,753,617.00
All other policies.....	5	12,000.00
Reversionary additions.....		65,754.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	3,139	9,184,700.00
Endowment policies.....	1,852	2,694,500.00
All other policies.....	3	27,000.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	7	18,000.00
Endowment policies.....	17	21,000.00

OLD POLICIES INCREASED.

Whole life policies	27,500.00
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ADDITIONS BY DIVIDENDS.

Reversionary additions.....		3,688.00
Total number and amount.....	19,366	\$36,898,712.00
Deduct policies ceased to be in force.....	2,516	4,586,409.00
Total in force December 31, 1888.....	16,850	\$32,312,303.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	7,988	\$21,451,018.00
Endowment policies in force ..	8,857	10,780,727.00
All other policies in force.....	5	13,000.00
Reversionary additions in force		67,558.00
Total number and amount..	16,850	\$32,312,303.00

TERMINATED AS FOLLOWS.

By death.....	149	\$291,209.00
maturity	17	32,710.00
expiry.....	1	1,500.00
surrender	889	1,036,750.00
lapse	654	1,216,500.00
change and decrease.....	113	490,940.00
Not taken	693	1,516,800.00
Total.....	2,516	\$4,586,409.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	186	\$242,000.00
Policies issued during the year.....	74	144,500.00
Total.....	260	\$386,500.00
Deduct policies ceased to be in force	14	21,900.00
In force in New Hampshire Dec. 31, 1888.	246	\$364,600.00

	<i>Number.</i>	<i>Amount.</i>
Losses and claims unpaid December 31, 1887...	1	\$1,000.00
Losses and claims paid during 1888.....	1	\$1,000.00
Premiums collected or secured without deductions.....		\$12,939.10

AGENTS IN NEW HAMPSHIRE.

P. D. BLODGETT, St. Johnsbury, Vt., General Agent.

John Rolley,	St. Johnsbury, Vt.	J. L. Farwell, Jr.,	Claremont.
A. J. Lane,	Manchester.	Melcher & Prescott,	Laconia.
Geo. M. Stevens & Son,	Lancaster.	John F. Page,	Littleton.
O. H. Palmer,	Nashua.	Dudley & Whittemore,	Colebrook.
John C. Hutchins,	North Stratford.	S. H. Brigham,	Lisbon.
J. D. Cateion,	Jefferson.		

NEW ENGLAND MUTUAL LIFE INSURANCE
COMPANY.

[Incorporated April 1, 1835. Commenced business December 1, 1843.]

BENJAMIN F. STEVENS, *President.*S. F. TRULL, *Secretary.*

Principal office, Boston, Mass.

INCOME.

New premiums without deductions.....	\$302,998.55
Renewal premiums.....	2,169,811.40
Total premium income.....	\$2,472,809.95
Cash received for interest on:	
Mortgage loans.....	155,315.63
Bonds owned and dividends on stock.....	575,519.14
Premium notes, loans or liens.....	65,110.72
Other debts due the company.....	86,489.69
Rents for use of company's property.....	86,242.42
Profit and loss account.....	45,428.24
Total income.....	\$3,486,915.79
Net or ledger assets December 31, 1887.....	17,548,727.41
Total.....	\$21,035,643.20

DISBURSEMENTS.

Cash paid for losses and additions.....	\$1,171,659.66	
Premium notes, loans or liens used in payment of same	29,994.34	
Matured and discounted endowments and additions.	195,159.44	
Premium notes, loans or liens used in payment of same	7,043.56	
Gross amount paid for losses and endowments....		\$1,403,857.00
Cash paid for surrendered policies		266,198.31
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....		38,793.21
Cash distributions paid policy holders, applied in payment of premiums		565,992.76
Premium notes, loans or liens used in payment of dividends		28,986.30
<i>(Total paid policy holders \$2,303,827.58.)</i>		
Commissions to agents.....		179,370.47
Medical examiners' fees....		14,097.27
Salaries of officers and office employees.....		101,428.87
Taxes and fees.....		37,572.52
Advertising		16,266.46
All other items, viz.:		
Printing, stationery, and incidental expenses.....		160,164.94
Accrued interest on investments purchased.....		8,380.64
Total disbursements during the year.....		\$2,821,108.75
Balance December 31, 1888.....		\$18,214,534.45

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$1,757,428.64
Loans on mortgages of real estate (first liens).....	2,931,660.00

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Freeman's Nat'l Bank, of Boston, stock...	\$1,200.00	\$1,000.00
Huntington Ave. Lands stock.....	7,000.00	3,650.00
Huntington Ave. Lands stock.....	17,500.00	6,618.04
Third Nat'l Bank, of Boston, stock.....	9,720.00	4,000.00
American Bell Telephone stock	6,090.00	3,300.00
Freeman's Nat'l Bank, of Boston, stock...	400.00	300.00
Chicago & E. Illinois R. R. bonds.....	1,170.00	2,250.00
Kansas City, Emp. & So. R. R. Co. bonds..	2,200.00	
Huntington Ave. Lands stock.....	28,000.00	15,849.00
Huntington Ave. Lands stock.....	21,000.00	8,900.00

Market Value. Amount Loaned.

Huntington Ave. Lands stock.....	\$17,500.00	\$9,845.93
Oregon Transcontinental R. R. Co. bonds	5,075.00	2,400.00
Grand Ave. Ry. Co., of Kansas City, stock	9,000.00	25,000.00
Metrop. St. Ry. Co., of Kansas City, stock	21,510.00	
Cin., Sandusky & Cleveland R. R. bonds..	15,300.00	50,000.00
Ogdensburg & L. Champlain R. R. stock..	13,475.00	
New York & New England R. R. stock.....	11,700.00	
Old Colony stock.....	17,100.00	
Chicago, Burlington & Quincy R. R. stock	2,750.00	2,500.00
Cash.....	250.00	
Metrop. St. Ry. Co., of Kansas City, stock.	40,500.00	36,000.00
Grand Ave. Ry. Co., of Kan. City, stock...	13,500.00	10,000.00
Atchison, Top. & Santa Fe R. R. Co. stock.	4,077.50	4,000.00
Policy of Life Insurance, No. 65,038.....	2,416.93	
Chicago & Northwestern R. R. Co. stock...	10,825.00	9,000.00
Kansas City, Top. & Western R. R. bonds.	1,100.00	800.00
Grand Ave. Ry. Co., Kansas City, stock...	13,500.00	15,000.00
Metrop. St. Ry. Co., Kansas City, stock....	3,510.00	
Tremont National Bank, Boston, stock....	8,740.00	3,500.00
Southern Florida R. R. Co. bonds.....	14,000.00	12,000.00
Boston & Albany R. R. Co. stock.....	11,110.00	8,000.00
Bridgeport Paper Co. stock.....	31,500.00	25,000.00
Burl. & Missouri River R. R. bonds.....	17,800.00	77,500.00
New York & New Eng. R. R. Co. bonds...	62,000.00	
Rensselaer & Saratoga R. R. Co. stock....	43,750.00	
Norwich & Worcester R. R. Co. stock.....	43,875.00	
Atch., Topeka & Santa Fe R. R. Co. bonds.	8,055.00	7,000.00
Bridgeport Paper Co. stock.....	31,500.00	25,000.00
Bridgeport Paper Co. stock.....	31,500.00	25,000.00
West End Street Railway Co. stock.....	129,600.00	100,000.00
Eastern Railroad Co. bonds.....	3,690.00	3,000.00
Atchison, Top. & Santa Fe R. R. Co. stock.	1,922.25	2,400.00
Atchison, Top. & Santa Fe R. R. Co. bonds.	1,030.00	
Metrop. St. Railway Co., Kan. City, stock.	27,000.00	20,000.00
Detroit & Bay City R. R. Co. bonds.....	1,250.00	700.00
Eastern Railroad Co. bonds.....	61,500.00	50,000.00
West End Street Railway Co. stock.....	129,600.00	100,000.00
Union Stock Yards & Transit Co. stock....	55,500.00	100,000.00
Chicago & Northwest'n Railway Co. stock.	54,125.00	
Union Pacific Railway Co. stock.....	19,312.50	7,000.00
Chicago & Eastern Illinois Ry. Co. bonds..	9,270.00	
Mortgage note.....	5,500.00	1,000.00
Southern Kansas R. R. Co. bonds.....	4,980.00	20,000.00
Southern Kansas R. R. Co. bonds.....	950.00	
Atch., Topeka & Santa Fe R. R. Co. stock..	17,900.00	10,000.00
Atch., Topeka & Santa Fe R. R. Co. stock..	8,737.50	
Mexican Central R. R. Co. bonds.....	2,640.00	60,000.00
Boston & Maine R. R. stock.....	45,250.00	
Old Colony R. R. stock.	34,200.00	47,500.00
Helena & Red Mt. R. R. Co. bonds.....	50,000.00	
Chicago, Burl. & Quincy R. R. Co. stock...	22,000.00	35,000.00
Denver & Rio Grande bonds.....	11,250.00	
Oregon Improvement Co. bonds.....	10,450.00	
Oregon & Transcontinental Co. bonds.....	10,150.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Third National Bank, of Boston, stock....	\$10,500.00	} \$10,000.00
St. Louis & San Francisco R. R. bonds.....	1,157.50	
New Mexico & So. Pacific R. R. Co. bonds..	58,500.00	50,000.00
Kingman, Pratt & Western R. R. Co. bonds	2,850.00	} 4,500.00
Atch., Topeka & Santa Fe R. R. Co. bonds.	895.00	
Chicago, Kan. & Western R. R. Co. bonds..	900.00	
Chicago, Burl. & Quincy R. R. Co. stock...	2,420.00	1,300.00
Total value and amount loaned.....	<u>\$1,396,529.18</u>	<u>\$1,015,812.97</u>
Loans on collateral securities.....		\$1,015,812.97
Loans on company's policies as collateral.....		6,400.00
Premium notes, loans or liens on policies in force.....		694,848.68

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
Atlantic National Bank.....	\$7,101.00	\$9,504.00
Bay State National Bank.....	7,500.00	14,200.00
Boston National Bank.....	33,300.00	39,960.00
Continental National Bank.....	10,000.00	11,800.00
First National Bank of Cambridge.....	5,000.00	8,887.50
Massachusetts National Bank.....	5,250.00	5,617.50
Merchants' National Bank.....	9,100.00	13,013.00
National City Bank of Lynn.....	10,700.00	20,865.00
National Revere Bank.....	15,000.00	19,050.00
National, Hide & Leather Bank.....	15,000.00	18,375.00
National Eagle Bank.....	24,000.00	24,960.00
Tremont National Bank.....	31,951.25	36,800.00
National Webster Bank.....	20,000.00	22,400.00
Boston Safe Deposit & Trust Co.....	37,500.00	65,625.00
Merchandise National Bank.....	25,000.00	22,750.00
State National Bank.....	10,273.10	15,240.00
Third National Bank.....	40,000.00	43,200.00
Globe National Bank.....	10,000.00	9,800.00
Nicollet National Bank.....	40,000.00	40,000.00
American Loan & Trust Co.....	20,000.00	22,700.00
German-American National Bank.....	10,000.00	10,000.00
Boston & Albany R. R. Co....	85,000.00	171,700.00
Boston & Providence R. R. Co.....	29,950.00	75,000.00
Chicago, Burlington & Quincy R. R. Co....	127,732.77	140,580.00
Connecticut & Passumpsic R. R. Co.....	80,000.00	90,000.00
Fitchburg R. R. Co.....	24,759.00	19,500.00
N. Y., New Haven & Hartford R. R. Co....	15,000.00	36,000.00
Norwich & Worcester R. R. Co.....	84,925.25	149,175.00
Northern R. R. Co.....	10,000.00	14,500.00
Connecticut River R. R. Co.....	20,000.00	38,400.00
Chicago & Alton R. R. Co....	26,600.00	35,910.00
Eastern Railroad of New Hampshire.....	3,150.00	11,392.50
Portland, Saco & Portsmouth.....	20,000.00	24,600.00
Atchison, Topeka & Santa Fe R. R. Co.....	51,712.50	33,493.75
Boston & Lowell.....	20,000.00	31,200.00
Metropolitan Street Ry., of Kansas City....	109,500.00	100,800.00

Cost Value. Market Value.

Boston Gas-Light Co.....	\$20,000.00	\$42,000.00
Dwight Manufacturing Co.....	5,000.00	3,562.50
Massachusetts Cotton Mills.....	5,000.00	5,525.00
Massachusetts Title Insurance Co.....	12,000.00	12,000.00
Land Title Guarantee Co., Kansas City.....	45,832.40	49,050.00
Boston Gas Syndicate stock.....	50,000.00	50,000.00
Boston Northwest Real Estate Co.....	50,000.00	50,000.00

BONDS.

United States bonds.....	166,000.00	206,490.00
Atchison, Topeka & Santa Fe R. R. Co....	145,902.50	151,500.00
Maine Central R. R. Co.....	248,850.00	256,250.00
Ottumwa, C. Falls & St. Paul R. R. Co....	50,000.00	54,000.00
Dayton & Michigan R. R. Co.....	50,000.00	52,750.00
Delaware & Chesapeake R. R. Co.....	108,531.25	110,000.00
Pittsburg, Cleveland & Toledo R. R. Co....	50,000.00	50,000.00
Michigan Central R. R. Co.....	100,000.00	128,000.00
Chicago, Milwaukee & St. Paul.....	98,942.50	103,250.00
Strawn & Ind. State Line.....	50,000.00	54,000.00
Missouri Valley & Blair Ry. & Bridge Co..	25,000.00	25,750.00
Northern Illinois Railway Co.....	100,000.00	108,000.00
Chicago & Northwestern Ry. Co.....	50,000.00	53,700.00
K. City, Clinton & Springfield Ry. Co.....	50,000.00	47,500.00
Union Pacific Ry. Co.....	100,000.00	105,000.00
Burlington & Missouri River R. R.....	190,781.25	178,000.00
South Kansas Ry. Co.	125,000.00	120,000.00
St. Joseph & Grand Island R. R. Co.....	50,000.00	51,875.00
Corrigan Consolidated St. Ry., Kan. City..	100,000.00	101,750.00
St. Louis Cable & Western Ry. Co.....	50,000.00	52,500.00
Spokane & Palouse Ry. Co.....	25,000.00	25,250.00
Cin., Indianapolis, St. Louis & Chicago...	63,800.00	61,425.00
Chicago, Burlington & Northern R. R. Co.	50,000.00	49,500.00
Helena & Red Mountain R. R. Co.....	50,000.00	50,000.00
Chicago, Kansas & Western R. R. Co.....	54,000.00	49,500.00
Atchison, Topeka & Santa Fe R. R.....	141,312.50	134,250.00
Kansas City Cable Ry. Co.....	74,500.00	72,000.00
Dakota & Great Southern R. R. Co.....	100,000.00	95,000.00
Des Moines & Fort Dodge R. R. Co.....	24,500.00	21,250.00
Maine Central R. R. Co.....	180,862.50	175,500.00
Housatonic R. R. Co.....	100,000.00	106,000.00
Duluth & Iron Range R. R. Co.....	47,500.00	48,500.00
Chicago & Eastern Illinois R. R. Co.....	97,050.00	97,000.00
Chicago, Rock Island & Pacific R. R. Co...	100,000.00	104,750.00
Fitchburg R. R. Co.....	50,000.00	52,687.50
Baltimore & Ohio R. R. Co.....	50,000.00	53,750.00
Somerset Railway Co.....	97,500.00	100,000.00
Grand Rapids, Lansing & Detroit R. R....	29,250.00	29,100.00
Grand Ave. Railway Co., Kansas City....	95,500.00	95,000.00
St. Paul, Minn. & Manitoba Ry.....	48,500.00	48,000.00
Oregon Short Line.....	50,000.00	55,250.00
Louisville, Evansville & St. Louis R. R...	60,000.00	62,700.00
Evansville, Terre Haute & Chicago R. R..	10,000.00	10,400.00
Boston & Providence R. R. Co.....	100,000.00	104,000.00
Albany city scrip.....	23,256.00	27,420.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Boston city loan.....	\$207,736.12	\$246,195.00
Eastern R. R. Co.....	275,000.00	338,250.00
Phila., Wilmington & Baltimore R. R.....	193,871.67	204,060.00
Michigan Central R. R. Co.....	75,000.00	77,437.50
Boston, Concord & Montreal R. R. Co.....	500,000.00	546,250.00
Chicago, Burlington & Quincy R. R. Co....	120,000.00	150,480.00
Worcester & Nashua R. R. Co.....	75,000.00	77,250.00
New Haven & Derby R. R. Co.....	14,250.00	18,300.00
Fremont, Elkhorn & Mo. Valley R. R. Co.	50,000.00	61,500.00
Boston water loan.....	363,000.00	404,575.00
Boston court-house loan.....	5,000.00	5,425.00
Boston sterling loan.....	190,000.00	195,500.00
Chicago sewerage loan.....	70,350.00	81,750.00
New Hampshire loan.....	26,000.00	33,470.00
Chelsea loan.....	206,504.17	232,140.00
Lawrence loan.....	186,210.83	205,230.00
Lynn loan.....	226,000.00	267,345.00
Massachusetts loan.....	98,172.35	113,295.00
Rhode Island loan.....	50,000.00	54,500.00
Cincinnati loan.....	95,000.00	119,200.00
Worcester water loan.....	85,000.00	98,175.00
Lowell water loan.....	56,533.33	59,280.00
Brookline loan.....	225,000.00	241,937.50
Fitchburg loan.....	125,485.17	151,225.00
Springfield loan.....	126,000.00	170,100.00
Providence loan.....	146,403.06	160,140.00
Norwich loan.....	94,000.00	120,040.00
Fall River loan.....	203,000.00	222,840.00
Holyoke loan.....	5,000.00	5,800.00
Newton loan.....	70,000.00	87,500.00
Haverhill loan.....	5,000.00	5,100.00
New York City loan.....	300,000.00	348,000.00
New Bedford loan.....	10,000.00	11,300.00
Salem loan.....	10,000.00	11,450.00
Taunton loan.....	39,000.00	44,460.00
Lewiston loan.....	100,000.00	114,000.00
Pawtucket loan.....	150,000.00	164,250.00
Chamber of Commerce, Minn.....	97,500.00	100,000.00
Boston & Maine loan.....	100,000.00	100,000.00
St. Paul Chamber of Commerce.....	48,750.00	50,000.00
Kansas City School District.....	50,000.00	51,500.00
Minneapolis Gas-Light Co.....	50,000.00	52,750.00
City of Lawrence, Kan.....	50,000.00	50,000.00
Lincoln, Nebraska.....	49,583.33	50,000.00
Jarvis-Conklin Mortgage Trust Co.....	99,000.00	100,000.00
Jamaica Plain Gas-Light Co.....	20,000.00	20,000.00
Town of Eden, Maine, loan.....	107,000.00	107,000.00
Nicollet National Bank loan.....	50,000.00	50,000.00
Boston, Concord & Montreal R. R. note..	20,000.00	20,000.00
St. Louis Cable & Western R. R. note....	20,000.00	20,000.00
Atchison, Topeka & Santa Fe R. R. note...	200,000.00	200,000.00
Metropolitan St. Ry. Co., Kan. City, note..	200,000.00	200,000.00
Total values.....	<u>\$10,853,725.80</u>	<u>\$12,016,683.25</u>

Cost value of stocks and bonds..... \$10,853,725.80

Cash deposited in banks.....	\$692,562.91
Quarterly and semi-annual premium notes.....	262,095.45
Total net or ledger assets, as per balance.....	<u>\$18,214,534.45</u>

OTHER ASSETS.

Interest due and accrued on :

Mortgages.....	\$45,454.66
Stocks and bonds.....	109,497.30
Collateral loans.....	16,235.10
Premium notes, loans or liens.....	25,500.00
Rents due and accrued.....	11,334.99
Market value of stocks and bonds over cost.....	1,162,957.45
Premiums due and unreported on policies in force....	\$154,471.66
Deduct average loading (20 per cent).....	<u>30,894.32</u>
Net amount of uncollected and deferred premiums....	123,577.34
Total assets as per books of the company.....	<u>\$19,709,091.29</u>

LIABILITIES.

Net present value of all outstanding policies, computed
according to the Actuaries' Table of Mortality, with
4 per cent interest.....

Death losses unpaid.....	\$95,164.00
Matured endowments unpaid.....	<u>18,373.00</u>
Total policy claims.....	113,537.00
Unpaid distributions of surplus due policy holders.....	<u>120,294.15</u>
Liabilities as to policy holders.....	\$17,192,726.15
Surplus as regards policy holders.....	<u>2,516,365.14</u>
Gross liabilities.....	<u>\$19,709,091.29</u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.....	\$989,447.09
Premium notes, loans or liens received during the year..	<u>538,672.94</u>
Total.....	\$1,528,120.03

Deductions during the year, as follows: Notes, loans or
liens used in —

Payment of losses and claims.....	\$37,037.90
Purchase of surrendered policies and voided by lapse.....	38,793.21
Payment of dividends to policy holders.....	28,986.30
Redeemed by maker in cash.....	466,358.49
Total reduction.....	\$571,175.90
Balance of note assets December 31, 1888.....	<u>\$956,944.13</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	11,140	\$33,716,173.00
Endowment policies.....	11,459	32,874,109.00
All other policies.....	1,218	3,163,842.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....		13,579.00
Endowment policies.....	3,228	9,073,379.00
All other policies.....	1	1,321.00

OLD POLICIES REVIVED.

Whole life policies.....	22	91,061.00
Endowment policies.....	25	112,641.00
Total number and amount.....	<u>27,093</u>	<u>\$79,046,105.00</u>
Deduct policies ceased to be in force.....	1,788	5,454,864.00
Total in force December 31, 1888.....	<u>25,305</u>	<u>\$73,591,241.00</u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	10,678	\$32,084,686.00
Endowment policies in force.....	13,517	38,565,319.00
All other policies in force.....	1,110	2,941,236.00
Total number and amount.....	<u>25,305</u>	<u>\$73,591,241.00</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	396	\$1,241,716.00
maturity.....	109	184,558.00
expiry.....	103	206,500.00
surrender.....	420	1,123,690.00
lapse.....	426	1,658,436.00
change and decrease.....	9	176,964.00
Not taken.....	325	863,000.00
Total.....	<u>1,788</u>	<u>\$5,454,864.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	235	\$408,365.00
Policies and additions issued during the year....		20.00
Total.....	<u>235</u>	<u>\$408,385.00</u>
Deduct policies ceased to be in force.....	8	16,371.00
In force in New Hampshire Dec. 31, 1888...	<u>227</u>	<u>\$392,014.00</u>
Losses and claims unpaid December 31, 1887....	1	\$6,500.00
Losses incurred during 1888.....	7	13,500.00
Total	<u>8</u>	<u>\$20,000.00</u>
Losses and claims paid during 1888.....	<u>7</u>	<u>\$13,500.00</u>
Premiums collected or secured without deductions:		
Cash, \$1,132.85; notes or credits, \$408.....		<u>\$1,540.85</u>

AGENTS IN NEW HAMPSHIRE.

W. B. Burton, West Lebanon.

Hillsley & Moore, Portsmouth.

NEW YORK LIFE INSURANCE COMPANY.

[Incorporated, 1841. Commenced business, 1845.]

WILLIAM H. BEERS, *President.*HENRY TUCK, *Vice-President.*

Principal office, New York City.

INCOME.

New premiums without deductions	\$6,564,022.92	
Renewal premiums	12,586,596.02	
Annuities	1,599,643.93	
Total	\$20,660,262.87	
Deduct amount paid for re-insurance	99,653.34	
Total premium income		\$20,560,609.53
Cash received for interest on :		
Mortgage loans	946,909.74	
Bonds owned and dividends on stock	2,877,282.06	
Premium notes, loans or liens	55,675.82	
Other debts due the company	246,225.90	
Discount on claims paid in advance	17,965.89	
Rents for use of company's property	92,772.25	
Profits on bonds and real estate sold	73,732.77	
Total income		\$24,871,173.96
Net or ledger assets December 31, 1887		77,410,343.14
Total		\$102,281,517.10

DISBURSEMENTS.

Cash paid for losses and additions	\$4,433,700.92	
Premium notes used in payment of same	16,501.12	
Cash paid for matured endowments and additions	1,044,031.78	
Premium notes used in payment of same	99.95	
Gross amount paid for losses and endowments	\$5,494,333.77	
Received for losses or claims on policies re-insured	68,406.99	
Net amount paid for losses and endowments		\$5,425,926.78
Cash paid to annuitants	1,057,386.41	
Cash paid for surrendered policies	2,157,865.26	
Premium notes used in purchase of surrendered policies and voided by lapse		22,403.80

Cash dividends paid policy holders.....	\$2,308,053.63
Premium notes used in payment of dividends.....	1,434.17
<i>(Total paid policy holders.....\$10,973,070.05.)</i>	
Commissions to agents	2,654,520.27
Salaries and traveling expenses of agents.....	100,000.00
Medical examiners' fees.....	206,340.42
Salaries of officers and office employees.....	340,832.40
Taxes and fees	203,409.50
Advertising.....	97,953.22
Office, law, and agency expenses, including rent, furniture, fixtures, and safes	813,484.61
Total disbursements during the year.....	<u>\$15,389,610.47</u>
Balance December 31, 1888.....	<u>\$86,891,906.63</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$9,308,152.08
Loans on mortgages of real estate (first liens)	16,966,932.50

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Par Value.</i>	<i>Market Value.</i>
Delaware, Lackawanna & Western stock...	\$5,000.00	\$7,200.00
Central Trust Co. stock.....	5,000.00	23,250.00
New York, Ontario & Western bonds.....	250,000.00	280,000.00
Evansville & Indianapolis bonds.....	90,000.00	96,300.00
Central National Bank stock.....	61,100.00	82,485.00
Western Union stock.....	10,000.00	8,350.00
Kansas City, St. Louis & Chicago stock	2,000.00	2,000.00
Iowa City & Western bonds.....	3,000.00	3,000.00
New York Central stock	10,000.00	10,900.00
N. Y., Lake Erie & Western bonds.....	20,000.00	20,400.00
East Tennessee, Virginia & Georgia bonds.	10,000.00	12,300.00
Milwaukee, Lake Shore & Western bonds..	7,000.00	8,295.00
Union Pacific bonds	250,000.00	297,500.00
Delaware, Lackawanna & Western stock ..	50,000.00	72,090.00
Central Pacific bonds.....	100,000.00	105,000.00
Southern Pacific of California bonds.....	50,000.00	56,000.00
Southern Pacific of Arizona bonds.....	50,000.00	54,500.00
Galveston, Harrisburg & S. Antonio bonds.	50,000.00	47,000.00
Milwaukee & Northern bonds.....	50,000.00	52,750.00
Rome, Watertown & Ogdensburg bonds....	11,000.00	11,770.00
Richmond & Danville bonds.....	10,000.00	11,700.00
Denver & Rio Grande bonds.....	5,000.00	3,850.00
Columbus, Hocking Valley & Toledo bonds	2,000.00	2,000.00
Sixth Avenue R. R. stock.....	2,800.00	4,480.00

	<i>Par Value.</i>	<i>Market Value.</i>
Market Bank stock.....	\$2,400.00	\$4,440.00
Park Bank stock.....	2,500.00	4,700.00
Western Union stock.....	10,000.00	8,350.00
Erie & Pittsburg stock.....	15,000.00	16,500.00
Delaware, Lackawanna & Western stock..	70,000.00	100,800.00
St. Paul, Minneapolis & Manitoba stock....	50,000.00	49,500.00
Chicago & Northwestern stock.....	100,000.00	108,000.00
Western Union stock.....	60,000.00	50,100.00
Chicago & Northwestern stock.....	140,000.00	151,200.00
Western Union stock.....	70,000.00	58,450.00
Delaware, Lackawanna & Western stock..	50,000.00	72,000.00
St. Paul, Minneapolis & Manitoba stock....	30,000.00	29,700.00
Western Union stock.....	10,000.00	8,350.00
Lake Shore & Michigan Southern stock....	50,000.00	52,000.00
St. Paul, Minneapolis & Manitoba stock....	65,000.00	64,350.00
E. Tennessee, Virginia & Georgia bonds...	55,000.00	55,000.00
Knoxville & Ohio bonds.....	7,000.00	7,000.00
Chicago, Milwaukee & St. Paul stock.....	30,000.00	31,200.00
Total values.....	<u>\$1,920,800.00</u>	<u>\$2,144,670.00</u>

Loans on collateral securities.....	\$1,676,250.00
Premium notes, loans or liens on policies in force.....	378,874.10

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
American Exchange Bank.....	\$10,025.00	\$14,400.00
Merchants' Bank, New York.....	11,112.58	13,277.00
Bank of Republic, New York.....	907.50	1,682.00
Bank of America, New York.	8,484.00	13,706.00
Third National Bank, New York.....	110,000.00	110,000.00
Chicago & Northwestern R. R.....	1,438,389.58	1,593,300.00
Delaware, Lackawanna & Western R. R....	528,928.12	721,250.00
Manhattan Safe Deposit Co.....	197,100.00	197,100.00
Valley Railroad.....	502,500.00	525,000.00

<i>BONDS.</i>		
United States.....	786,009.59	1,442,912.50
Alabama State.....	36,100.00	49,200.00
Georgia State.....	1,590.00	1,522.50
Mississippi State.....	19,600.00	19,600.00
South Carolina State.	27,624.37	31,412.43
Callaway County, Missouri.....	125,000.00	125,000.00
Custer County, Montana.....	48,767.50	48,767.50
Dallas City, Texas.....	205,378.25	205,378.25
Elizabeth City, N. J.....	295,650.00	295,650.00
Flatbush, N. Y., water.....	19,600.00	22,000.00
Flushing, N. Y.....	9,901.50	26,527.50
Galveston City, Texas.....	173,730.00	174,270.83
Jersey City, N. J.....	465,076.10	497,245.00
Jefferson County, Missouri.....	199,354.00	199,354.00
New York City and County.....	128,097.70	155,037.91
Newark, N. J.....	721,784.19	737,801.67

	<i>Cost Value.</i>	<i>Market Value.</i>
Ottawa City, Canada.....	\$109,897.70	\$109,897.70
Petersburg City, Va.....	30,750.00	33,150.00
Richmond City, Va.....	46,250.00	69,000.00
St. Paul, Minn., water.....	184,820.40	209,643.33
St. Paul, Minn.....	30,322.50	30,322.50
San Antonio, Texas.....	186,035.00	186,035.00
Albany & Susquehanna R. R.....	906,566.57	976,967.50
Burlington, Cedar Rapids & Northern R. R.	169,952.50	169,952.50
Boston, Hoosac Tunnel & Western R. R....	134,866.67	134,866.67
Cedar Rapids, Iowa Falls & No'western R. R	447,965.00	464,275.00
Chicago, Milwaukee & St. Paul R. R.....	740,099.59	747,687.50
Chicago & Northwestern R. R.....	2,809,550.02	2,936,500.00
Chicago & Northwestern General & S. F....	796,800.00	810,937.50
Chicago, St. Paul, Minn. & Omaha R. R....	1,196,964.16	1,249,500.00
Chicago & Western Indiana R. R.....	1,006,023.33	1,115,000.00
Chicago & Eastern Illinois R. R.....	179,157.50	192,700.00
Chicago & St. Louis.....	229,395.80	232,560.00
Chicago, Rock Island & Pacific R. R.....	523,750.00	523,750.00
Cincinnati, Lafayette & Chicago R. R.....	194,105.20	194,675.83
Cleveland, Col., Cinn. & Ind. R. R.....	1,306,712.60	1,462,720.00
Canadian Pacific R. R.....	573,931.56	576,450.00
Central R. R. & Banking Co. of Georgia....	986,666.67	991,666.67
Central R. R. of New Jersey.....	2,343,824.35	2,442,165.00
Denver & Rio Grande R. R.....	243,423.33	273,373.33
Detroit, Bay City & Alpena.....	169,952.30	169,990.00
Evansville & Indianapolis R. R.....	676,537.00	696,150.00
Evansville & Terre Haute R. R.....	342,960.00	342,960.00
E. Tennessee, Virginia & Georgia R. R....	488,332.83	513,416.67
Flint & Pere Marquette R. R.....	119,250.00	119,250.00
Fremont, Elkhorn & Missouri Valley R. R..	1,096,573.03	1,097,145.00
Gulf, Colorado & Santa Fe R. R.....	2,194,798.16	2,252,250.00
Indianapolis & St. Louis R. R.....	156,481.25	162,075.00
Iowa Midland R. R.....	63,166.11	65,000.00
Ionia & Lansing R. R.....	49,000.00	49,000.00
Kan. City, St. Joseph & Council Bluffs R. R	161,889.00	163,800.00
Lake Shore & Michigan Southern R. R.....	2,652,677.00	2,776,458.33
Louisiana & Western R. R.....	314,850.00	321,000.00
Louisville & Frankfort R. R.....	56,750.00	57,250.00
Mahoning Coal.....	362,028.28	426,000.00
Metropolitan Elevated R. R., New York....	319,099.69	361,125.00
Memphis & Charleston R. R.....	304,930.00	306,250.00
Michigan Central R. R.,.....	58,406.67	64,916.67
Minneapolis & St. Louis R. R.....	165,000.00	165,000.00
Minneapolis Union R. R.....	500,000.00	500,000.00
Morgan's Louisiana & Texas R. R. & S. S...	831,207.47	832,365.00
Mobile & Girard R. R.....	155,152.50	156,916.67
Midland of New Jersey R. R.....	269,610.00	283,750.00
Missouri Pacific R. R.....	1,090,000.00	1,090,000.00
New York Elevated R. R.....	795,579.26	814,335.00
New Mexico & Southern Pacific R. R.....	134,837.50	134,837.50
New York Central & Hudson River R. R....	1,014,172.81	1,320,000.00
New York & Harlem R. R.....	1,047,641.67	1,298,333.33
New York, Lake Erie & Western R. R.....	2,383,280.70	2,678,333.33
New York, Ontario & Western R. R.....	165,645.10	183,960.00

	<i>Cost Value.</i>	<i>Market Value.</i>
New York, Lackawanna & Western R. R....	\$1,603,549.32	\$1,942,500.00
New York, Susquehanna & Western.....	225,000.00	235,000.00
Nashville, Chattanooga & St. Louis R. R....	338,360.00	338,625.00
Northern Pacific R. R.....	1,235,344.83	1,347,000.00
Northern Pacific Terminal R. R.....	500,000.00	517,500.00
Northern Illinois R. R.....	706,090.00	744,333.33
Northwestern Grand Trunk R. R.....	10,974.00	10,974.00
Ohio, Indiana & Western R. R.....	308,010.00	308,010.00
Ottawa & Burlington R. R.....	185,946.00	185,946.00
Peoria, Decatur & Evansville R. R.....	110,910.00	110,910.00
Pueblo & Arkansas Valley R. R.....	44,200.00	44,200.00
Rensselaer & Saratoga R. R.....	9,519.92	12,900.00
Rochester & Pittsburg R. R.....	72,475.00	72,475.00
South Carolina R. R.....	188,055.00	190,045.00
St. Paul, Minneapolis & Manitoba R. R....	2,215,660.00	2,245,500.00
St. Paul & Northern Pacific R. R.....	745,000.00	903,750.00
Taylor's Falls & Lake Superior R. R.....	212,100.00	212,100.00
Texas & New Orleans R. R.....	317,195.83	322,855.83
Virginia & Tennessee R. R.....	67,280.00	67,280.00
West Shore R. R.....	2,850,483.58	2,933,541.25
Wheeling & Lake Erie R. R.....	380,960.00	405,000.00
American Safe Deposit Co.....	54,865.00	54,865.00
American Dock & Improvement Co.....	321,484.45	348,820.00
Delaware & Hudson Canal Co.....	366,936.45	411,870.00
Equitable Gas-Light Co., of New York.....	153,374.00	155,490.00
Equitable Gas-Light Co., of Baltimore....	219,460.03	230,280.00
New York Mutual Gas-Light Co.....	53,000.00	53,000.00
People's Gas-Light Co., of Chicago.....	568,375.00	640,050.00
St. Paul, Minn., Gas-Light Co.....	311,042.50	316,700.00
Western Transit Co.....	90,990.00	92,175.00
Hungarian Government.....	102,325.00	102,325.00
Italian Government....	3,567.00	3,567.00
Russian Government.....	290,474.33	290,474.33
Swiss Government.....	19,650.00	19,650.00
Swedish Government.....	96,070.58	96,070.58

Total values \$54,566,901.58 \$58,222,751.94

Cost value of stocks and bonds.....	\$54,566,901.58
Cash in company's office.....	3,763.49
Cash deposited in banks.....	3,692,073.45
Agents' ledger balances.....	298,959.43
Total net or ledger assets, as per balance	<u>\$86,891,906.63</u>

OTHER ASSETS.

Interest due and accrued on:

Mortgages.....	\$128,108.54
Stocks and bonds	314,366.27
Rents due and accrued.....	9,130.43
Market value of stocks and bonds over cost .	3,655,850.36

Premiums due and unreported on policies in force	\$1,045,089.46	
Deferred premiums on policies in force.	1,435,734.86	
Total.....	\$2,480,824.32	
Deduct average loading (20 per cent).....	496,164.86	
Net amount of uncollected and deferred premiums....		\$1,984,659.46
Total assets as per books of the company.....	\$92,984,021.69	

ITEMS NOT ADMITTED.

Agents' balances.....	298,959.43	
Total admitted assets.....	\$92,685,062.26	

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$78,585,016.00	
Deduct net value of re-insured risks.....	437,455.00	
Net re-insurance reserve.....		\$78,147,561.00
Matured endowments due and unpaid.....	\$56,511.88	
Death losses and matured endowments not due.....	856,020.39	
Death losses and other policy claims resisted.....	2,500.00	
Due and unpaid on annuity claims.....	26,865.69	
Total policy claims.....		941,897.96
Premiums paid in advance.....		46,504.21
Liabilities as to policy holders.....	\$79,135,963.17	
Surplus as regards policy holders.....	13,549,099.09	
Gross liabilities.....	\$92,685,062.26	

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$388,799.44	
Premium notes, loans or liens received during the year	141,855.20	
Total		\$530,654.64
Deductions during the year, as follows: Notes, loans or liens used in —		
Payment of losses and claims.....	\$16,601.07	
Purchase of surrendered policies and voided by lapse	22,403.80	
Payment of dividends to policy holders.....	1,434.17	
Redeemed by maker in cash.....	111,341.50	
Total reduction.....		151,780.54
Balance of note assets December 31, 1888.....	\$378,874.10	

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	74,878	\$246,483,800.00
Endowment policies.....	32,691	107,608,479.00
All other policies.....	5,754	711,200.00
Reversionary additions.....		4,132,057.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	21,879	83,619,437.00
Endowment policies.....	10,466	36,643,200.00
All other policies.....	881	421,400.00

OLD POLICIES REVIVED.

Whole life policies.....	77	231,651.00
Endowment policies.....	30	90,100.00
All other policies.....	1	600.00

OLD POLICIES INCREASED.

Whole life policies.....	76,043.00
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ADDITIONS BY DIVIDENDS.

Reversionary additions.....		3,937,300.00
Total number and amount.....	146,657	\$483,955,267.00
Deduct policies ceased to be in force.....	16,746	64,068,762.00
Total in force December 31, 1888.....	129,911	\$419,886,505.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	86,043	\$289,154,100.00
Endowment policies in force.....	37,545	125,497,491.00
All other policies in force.....	6,323	1,062,800.00
Reversionary additions in force..		4,172,114.00
Total number and amount....	129,911	\$419,886,505.00

TERMINATED AS FOLLOWS.

By death	1,290	\$4,722,697.00
maturity	562	1,079,369.00

	<i>Number.</i>	<i>Amount.</i>
By expiry.....	292	\$50,000.00
surrender	1,926	11,345,771.00
lapse.....	7,027	22,913,483.00
change and decrease		678,150.00
Not taken	5,649	23,279,292.00
Total ..	<u>16,746</u>	<u>\$64,068,762.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	314	\$748,320.00
Policies issued during the year.....	73	106,760.00
Total	<u>387</u>	<u>\$855,080.00</u>
Deduct policies ceased to be in force.....	52	79,095.00
In force in New Hampshire Dec. 31, 1888..	<u>335</u>	<u>\$775,985.00</u>
Losses incurred and paid during 1888.....	5	<u>\$7,409.37</u>
Premiums collected or secured without deductions.....		<u>\$21,771.07</u>

AGENTS IN NEW HAMPSHIRE.

BENJAMIN S. CALEF, Boston, Mass., Manager N. E. Branch.

CROWELL & McKELLAR, Concord, General Agents.

(Albert H. Crowell, George A. McKellar.)

Benjamin A. Ball,	Boston, Mass.	Josiah C. Proctor,	Dunstable, Mass.
Daniel E. Howard,	Concord.	Samuel R. Cairns,	Manchester.
Lemuel N. Ide,	Claremont.		

NORTHWESTERN MUTUAL LIFE INSURANCE COMPANY.

[Incorporated March, 1857. Commenced business November 25, 1858.]

H. L. PALMER, *President.*

J. W. SKINNER, *Secretary.*

Principal office, Milwaukee, Wis.

INCOME.

New premiums without deductions	\$1,491,626.00
Renewal premiums.....	<u>4,737,798.10</u>
Total premium income.....	\$6,229,424.10
Cash received for interest on:	
Mortgage loans.....	1,532,853.51
Bonds	12,167.78
Premium notes, loans or liens.....	66,710.00
Other debts due the company.....	79,058.45
Discount on claims paid in advance.....	838.70
Rents for use of company's property.....	<u>79,580.91</u>
Total income.....	\$8,000,633.45
Net or ledger assets December 31, 1887.....	<u>27,803,581.89</u>
Total.....	\$35,804,215.34

DISBURSEMENTS.

Paid for losses and additions.....	\$1,346,897.84
Paid for matured endowments and additions.....	<u>234,943.00</u>
Gross amount paid for losses and endowments.....	\$1,581,840.84
Surrendered policies.....	250,541.63
Premium notes, loans or liens voided by lapse of policies.....	10,553.29
Dividends paid policy holders.....	956,761.17
<i>(Total paid policy holders... ..\$2,799,696.93.)</i>	
Commissions to agents.....	903,889.00
Salaries and traveling expenses of agents.....	28,365.62
Medical examiners' fees.....	72,742.61
Salaries of officers and office employees.....	136,048.73
Taxes and fees.....	<u>90,850.14</u>

Rent.....	\$4,740.48
Commuting commissions.....	12,306.40
Furniture and fixtures for offices.....	1,214.11
Advertising.....	7,162.81
Profit and loss account.....	28,741.44
All other items, viz.:	
Supplies, postage, exchange, building, law, loan, and other expenses.....	193,331.22

Total disbursements during the year..... \$4,279,089.79

Balance December 31, 1888..... \$31,525,125.55

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$1,243,468.41
Loans on mortgages of real estate (first liens)	27,352,727.03
Premium notes, loans or liens on policies in force.....	789,801.70

SCHEDULE OF BONDS.

	<i>Par Value.</i>	<i>Market Value.</i>
United States	\$115,000.00	\$140,293.75
Missouri, state.....	8,000.00	8,120.00
Kansas City, city.....	75,000.00	84,583.33
St. Louis, city.....	96,000.00	101,200.00
Sheboygan, city.....	58,625.00	62,393.33
Beloit, city.....	49,500.00 *	53,020.00
Beloit, town.....	2,300.00	2,422.66
Oshkosh, city.....	1,900.00	1,987.08
Stevens Point, city.....	2,000.00	2,193.33
Milwaukee, city.....	263,000.00	268,515.00
Chippewa, county.....	15,000.00	16,350.00
Buffalo, county.....	19,000.00	20,045.00
Springfield, city.....	12,700.00	13,546.66
Morrison, city.....	3,500.00	3,562.50
Carlinville, city.....	5,000.00	5,075.00
Elwood, town.....	21,000.00	21,551.25
Omaha, city.....	238,500.00	243,270.00
Georgia, state.....	12,000.00	12,810.00
Minnesota, state.....	53,000.00	55,186.25
Total values.....	<u>\$1,051,025.00</u>	<u>\$1,116,125.14</u>

Par value of bonds owned.....	1,051,025.00
Cash in company's office.....	134,163.64
Cash deposited in banks.....	794,443.55
Bills receivable.....	571.83
Agents' ledger balances.....	21,379.16
Cash in transit, since received.....	137,545.23

Total net or ledger assets, as per balance..... \$31,525,125.55

OTHER ASSETS.

Interest due and accrued on :

Mortgages	\$410,955.50
Premium notes, loans or liens	31,602.09
Rents due and accrued	7,024.98
Market value of bonds over par	65,100.14

Premiums due and unreported on policies in force.... \$194,058.87

Deferred premiums on policies in force..... 597,195.00

Total \$791,258.87

Deduct average loading (20 per cent)..... 158,250.77

Net amount of uncollected and deferred premiums.... 633,003.10

Total assets as per books of the company..... \$32,672,811.36

ITEMS NOT ADMITTED.

Agents' balances..... \$21,379.16

Bills receivable..... 571.83

Total items not admitted..... 21,950.99

Total admitted assets.... \$32,650,860.37

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with

4 per cent interest..... \$27,591,541.00

Death losses and matured endowments not due..... \$186,649.62

Death losses and other policy claims resisted..... 24,000.00

Total policy claims..... 210,649.62

Unpaid dividends of surplus due policy holders (estimated) 75,000.00

Premiums paid in advance (estimated) 2,000.00

Reserve for paid-up insurance claimable..... 95,183.00

All other liabilities, viz. : Accrued commissions (estimated),

\$10,000; accounts not presented (estimated), \$3,000..... 13,000.00

Liabilities as to policy holders \$27,987,373.62

Surplus as regards policy holders 4,663,486.75

Gross liabilities..... \$32,650,860.37

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.... \$857,535.04

Premium notes, loans or liens received during year.. 104,008.75

Total..... \$961,543.79

Deductions during the year, as follows: Notes, loans or
liens used in—

Payment of losses and claims.....	\$37,266.27	
Purchase of surrendered policies and voided by lapse.....	22,122.32	
Payment of dividends to policy holders.....	95,058.75	
Redeemed by maker in cash.....	17,294.75	
Total reduction.....		\$171,742.09
Balance of note assets December 31, 1888.....		\$789,801.70

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	50,205	\$115,057,121.00
Endowment policies.....	13,784	29,029,830.00
All other policies.....	417	3,528,372.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	11,882	32,776,021.00
Endowment policies.....	3,243	7,079,790.00
All other policies.....	87	403,000.00

OLD POLICIES REVIVED.

Whole life policies.....	189	470,721.00
Endowment policies.....	62	127,500.00
All other policies.....	1	8,500.00

OLD POLICIES INCREASED.

Whole life policies.....	14	
All other policies.....	2	29,067.00

ADDITIONS BY DIVIDENDS.

Whole life policies.....		62,073.00
Endowment policies.....		53,173.00
All other policies.....		2,567,515.00
Total number and amount.....	79,886	\$191,192,683.00
Deduct policies ceased to be in force.....	6,756	18,673,792.00
Total in force December 31, 1888.....	73,130	\$172,518,891.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	57,163	\$135,752,151.00
Endowment policies in force.....	15,538	33,122,451.00
All other policies in force.....	429	3,644,289.00
Total number and amount....	73,130	\$172,518,891.00

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	654	\$1,420,158.00
expiry.....	185	2,802,427.00
surrender.....	529	1,133,692.00
lapse.....	3,860	8,432,000.00
change and decrease.....	4	320,401.00
Not taken.....	1,524	4,565,114.00
Total	6,756	\$18,673,792.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	197	\$322,366.00
Policies issued during the year.....	75	153,582.00
Total	272	\$475,948.00
Deduct policies ceased to be in force.....	19	20,846.00
In force in New Hampshire Dec. 31, 1888..	253	\$455,102.00
Premiums collected or secured without deductions:		
Cash, \$15,438.84; notes or credits, \$209.23.....		\$15,648.07

AGENTS IN NEW HAMPSHIRE.

JOHN J. DILLON, Manchester, General Agent.

Walter M. Morgan,
William T. Morgan,
Frank W. Sweet,
Fred R. Felch,

Manchester.
Manchester.
Portsmouth.
Derry Depot.

Charles Hardon,
Elmer E. Fitch,
Frank G. Thurston,

Contoocook.
Claremont.
Nashua.

PENN MUTUAL LIFE INSURANCE COMPANY.

[Incorporated February 24, 1847.]

Commenced business May 25, 1847.]

EDWARD M. NEEDLES, *President*.HENRY C. BROWN, *Secretary*.

Principal office, Philadelphia, Penn.

INCOME.

New premiums without deductions.....	\$640,311.23	
Renewal premiums.....	1,999,249.85	
Annuities	1,000.00	
Total.....	\$2,640,561.08	
Deduct amount paid for re-insurance....	4,269.99	
Total premium income.....		\$2,636,291.09
Cash received for interest on:		
Mortgage loans.....		207,400.35
Bonds owned and dividends on stock.....		312,616.11
Premium notes, loans or liens.		36,511.89
General account.....		2,205.57
Collateral loans.....		105,402.95
Rents for use of company's property.....		30,786.57
Profits on bonds or stocks and real estate sold (net).....		22,540.90
Total income.....		\$3,353,755.43
Net or ledger assets December 31, 1887.,.....		11,827,556.83
Total		\$15,181,312.26

DISBURSEMENTS.

Cash paid for losses and additions.....	\$814,463.23	
Premium notes, loans or liens used in payment of same	18,860.77	
Cash paid for matured endowments and additions....	70,623.40	
Premium notes, loans or liens used in payment of same	4,613.60	
Gross amount paid for losses and endowments.....	\$908,561.00	
Received for losses or claims on policies re-insured....	10,000.00	
Net amount paid for losses and endowments.....		\$898,561.00
Cash paid for surrendered policies.....		181,816.03
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....		20,186.37

Cash dividends paid policy holders, \$6,841.77; applied in payment of premiums, \$512,690.77.....	\$519,532.54
<i>(Total paid policy holders.... \$1,620,095.94.)</i>	
Commissions to agents.....	280,360.66
Salaries and traveling expenses of agents.....	98,017.21
Medical examiners' fees.....	31,917.00
Salaries of officers and office employees.....	69,127.77
Taxes and fees.....	61,714.61
Rent.....	15,885.72
Commuting commissions....	6.70
Furniture and fixtures for offices.....	2,259.34
Advertising, printing, and supplies.....	25,510.93
All other items, viz.:	
Postage, home office expenses, fire insurance, and legal expenses.....	24,492.34
Total disbursements during the year.....	\$2,229,388.22
Balance December 31, 1888.....	\$12,951,924.04

Invested as follows:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$690,494.07
Loans on mortgages of real estate (first liens).....	4,288,229.74

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Shen. Iron, Lum., M. & Mfg. Co. bonds..	\$20,730.00	\$20,000.00
Reserve on paid-up life ins. policy in Co. }		
Rec. Cert. Shen. Iron, L., M. & Mfg. Co...	6,000.00	6,000.00
Pennsylvania R. R. bonds.....	2,440.00	2,000.00
Northern Central R. R. bonds.....	1,100.00	2,800.00
City Water Co. of Austin, Tex., bonds....	2,200.00	
Canton & Waynesburg R. R. bonds.....	100,000.00	60,000.00
Anniston & Cincinnati R. R. bonds.....	118,750.00	100,000.00
Jack., Tampa & Key West R. R. bonds....	200,000.00	160,000.00
Marietta & No. Georgia R. R. Co. bonds..	29,400.00	15,000.00
Marietta & No. Georgia R. R. Co. bonds...	58,800.00	45,000.00
Nevada (Mo) Water Co. bonds.....	47,500.00	30,000.00
Cape Fear & Yadkin Valley R. R. bonds..	59,850.00	50,000.00
Wilkesbarre & Western R. R. bonds.....	31,500.00	25,000.00
Americus, Preston & Lumpkin R.R. bonds	56,000.00	50,000.00
Corsicana (Tex.) Street Ry. Co. bonds....	10,800.00	8,000.00
City Water Co., Austin, Tex., bonds.....	33,250.00	17,000.00
Chest. St. Trust & S. Fund Co., Pa., stock.	31,500.00	25,000.00
Mechanics' Fire Ins. Co., Phila., stock....	2,125.00	
United Fireman's Ins. Co., Phila., stock..	1,375.00	
Real Estate Investment Co., Phila., stock	8,500.00	

	<i>Market Value.</i>	<i>Amount Loaned.</i>
City Certificates of Hot Springs, Ark.....	\$14,448.74	\$12,800.00
Carthage & Adirondack Ry. Co. bonds....	2,000.00	2,000.00
Total value and amount loaned.....	<u>\$833,268.74</u>	<u>\$630,600.00</u>
Loans on collateral securities.....		\$630,600.00
Loans on company's policies as collateral		364,957.00
Premium notes, loans or liens on policies in force.....		572,448.99

SCHEDULE OF STOCKS AND BONDS.

	<i>Par Value.</i>	<i>Market Value.</i>
<i>STOCKS.</i>		
Delaware Mutual Safety Ins. Co., Phila..	\$6,250.00	\$12,500.00
Commercial National Bank, Philadelphia	10,450.00	12,749.00
Western National Bank, Philadelphia.....	500,000.00	10,900.00
Corn Exchange National Bank, Phila....	5,000.00	7,500.00
Bank of North America, Philadelphia....	7,600.00	26,600.00
Girard National Bank, Philadelphia.....	2,000.00	5,500.00

<i>BONDS.</i>		
United States bonds.....	50,000.00	64,000.00
Penn. R. R. registered.....	206,000.00	248,860.00
American Steamship Co.....	25,000.00	27,000.00
Penn. Equipment Trust Certificates.....	100,000.00	96,000.00
Northern Central Ry., 5 per ct. mortgage.	110,000.00	121,000.00
Northern Central Ry., 6 per ct. sterling...	87,000.00	94,830.00
North Pennsylvania R. R.....	100,000.00	132,000.00
Phoenix Iron Co.....	67,000.00	68,340.00
Lehigh Valley R. R., gold.....	26,600.00	27,300.00
N. Y., Lackawanna & Western Ry. bonds	50,000.00	56,000.00
Baltimore & Ohio R. R.....	75,000.00	88,500.00
Carthage & Adirondack Ry., N. Y.....	50,000.00	42,500.00
Illinois & St. Louis R. R. & Coal Co.....	100,000.00	110,000.00
Venice & Carondelet Railway bonds.....	200,000.00	200,000.00
Jacksonville, Southeastern (Ill.) Ry... ..	50,000.00	49,000.00
Minn. & St. Louis R. R. bonds.....	100,000.00	100,000.00
Minn. & Duluth R. R.....	50,000.00	50,000.00
Terre Haute & Logansport R. R., Ind.....	99,000.00	100,980.00
Columbus & Cincinnati (O.) Midland R. R.	150,000.00	137,250.00
Grand Rapids & Indiana R. R.....	100,000.00	96,000.00
Marietta & No. Georgia R. R.....	150,000.00	149,000.00
Cape Fear & Yadkin Valley, N. C.....	150,000.00	147,000.00
Zanesville & Ohio River Railway.....	120,000.00	114,000.00
Toledo Belt Railway.....	150,000.00	145,500.00
Ohio River R. R.....	100,000.00	109,000.00
Chicago, Peoria & St. Louis Railway.....	100,000.00	92,500.00
Cleveland & Canton R. R. Co....	150,000.00	141,000.00
Capitol, North O St. & South Washington, D. C., Ry. Co.....	50,000.00	51,000.00
Union League, Philadelphia	35,000.00	35,875.00
Chester, Pa.....	182,000.00	200,200.00
Harrisburg, Pa.....	59,000.00	66,080.00
Salem, N. J.....	75,000.00	77,250.00

	<i>Par Value.</i>	<i>Market Value.</i>
Durham, N. C.....	\$50,000.00	\$51,500.00
Cumberland City, Md.....	50,000.00	53,000.00
Xenia City, O.....	77,000.00	78,750.00
Piqua City, O., schoolhouse....	24,000.00	24,720.00
Scioto County, O., bridge.....	9,000.00	9,180.00
Findlay, O., Water-works.....	75,000.00	78,000.00
Mt. Vernon, O.....	22,000.00	22,660.00
Ravenna, O.....	60,000.00	60,000.00
City of Lima, O.....	150,000.00	154,500.00
Louisville, Ky., city.....	50,000.00	58,500.00
Evansville, Ind.....	45,000.00	45,000.00
St. Joseph, Mo.....	175,000.00	178,500.00
Leavenworth City, Kan.....	106,500.00	89,460.00
Atchison, Kan.....	75,000.00	63,000.00
City & Township of Independence, Kan.	48,000.00	50,128.00
County of Saline, Kan.....	84,000.00	84,000.00
Duluth, Minn., Board of Trade.....	40,000.00	40,000.00
Lincoln City, Neb.....	40,000.00	41,600.00
Nebraska City, Neb.....	100,000.00	102,000.00
Hastings, Neb.....	100,000.00	98,000.00
Commercial Club, City of Ft. Worth, Tex..	20,000.00	20,800.00
Jamestown, N. Y., Water Supply Co.....	150,000.00	154,500.00
Jamestown, N. Y., Gas Co.....	50,000.00	51,000.00
Hudson River Water Power & Paper Co.	50,000.00	50,000.00
Chillicothe, O., Gas & Water Co.....	83,000.00	83,500.00
Hamilton & Rossville, O., Hydraulic Co..	50,000.00	50,000.00
Louisville, Ky., Water Co.....	100,000.00	110,000.00
St. Joseph, Mo., Water Co.....	100,000.00	106,000.00
Joplin, Mo., Water Co.....	75,000.00	78,750.00
Hot Springs, Ark.....	100,000.00	100,000.00
Burlington, Ia., Water Co.....	75,000.00	79,500.00
Austin, Tex., Water Co.....	130,000.00	143,000.00
Freeport, Ill., Water Co.....	109,000.00	112,270.00
Hutchinson, Kan., Water, Lt. & Tel. Co ..	150,000.00	141,000.00
National Water-works Co. of N. Y.....	100,000.00	105,000.00
Boonville, Mo., Water Co.....	50,000.00	49,000.00
Abilene, Kan., Water & Electric Light Co.	67,000.00	68,340.00
National Water-works Investment	100,000.00	95,000.00
Total values.....	<u>\$6,092,500.00</u>	<u>\$6,287,872.00</u>
Cost value of stocks and bonds.....		\$5,871,695.16
Cash in company's office		7,549.77
Cash deposited in banks.....		459,990.19
Bills receivable secured by collateral....		4,780.00
Agents' ledger balances secured by bonds.....		1,678.37
Bills receivable mainly secured by reserves on policies....		41,271.05
Sundry accounts.....		18,229.70
Total net or ledger assets, as per balance.....		<u>\$12,951,924.04</u>

OTHER ASSETS.

Interest due and accrued on:

Mortgages	\$71,942.71
Collateral loans	11,437.59
Rents due and accrued.....	5,669.16
Market value of stocks and bonds over cost.....	416,176.84
Premiums due and unreported on policies in force....	\$181,768.71
Deferred premiums on policies in force.....	231,078.73
Total.....	<u>\$412,847.44</u>
Deduct average loading (20 per cent).....	<u>82,569.49</u>
Net amount of uncollected and deferred premiums....	330,277.95
Total assets as per books of the company	<u>\$13,787,428.29</u>

ITEMS NOT ADMITTED.

Agents' balances.....	\$1,678.37
Bills receivable.....	4,780.00
Sundry accounts.....	<u>18,229.70</u>
Total items not admitted.....	24,688.07
Total admitted assets.....	<u>\$13,762,740.22</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$11,503,203.00
Death losses and matured endowments not due.....	69,560.00
Unpaid dividends of surplus due policy holders.....	45,536.42
Premiums paid in advance.....	9,721.64
Life rate endowment fund.....	296,635.74
Scrip outstanding.....	<u>9,050.00</u>
Liabilities as to policy holders	\$11,933,706.80
Surplus as regards policy holders	<u>1,829,033.42</u>
Gross liabilities.....	<u>\$13,762,740.22</u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$587,721.49
Premium notes, loans or liens received during the year	<u>104,320.71</u>
Total.....	\$692,042.20

Deductions during the year, as follows: Notes, loans or
liens used in —

Payment of losses and claims.....	\$23,474.37	
Purchase of surrendered policies and voided by lapse.....	20,186.37	
Payment of dividends to policy holders.....	65,604.32	
Redeemed by maker in cash.....	10,328.15	
Total reduction.....		\$119,593.21
Balance of note assets December 31, 1888.....		\$572,448.99

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	14,578	\$38,753,932.00
Endowment policies.....	9,725	20,382,321.00
All other policies.....	606	1,692,720.00
Reversionary additions.....		189,832.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	2,859	7,669,521.00
Endowment policies.....	2,218	5,687,222.00
All other policies.....	225	545,090.00

OLD POLICIES REVIVED.

Whole life policies.....	35	49,000.00
Endowment policies.....	117	120,893.00
All other policies.....	203	494,060.00
Reversionary additions.....		126.00

OLD POLICIES INCREASED.

Whole life policies.....	12	128,500.00
Endowment policies.....	7	26,000.00
All other policies.....	9	12,500.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		53,178.00
Total number and amount.....	30,594	\$75,804,895.00
Deduct policies ceased to be in force.....	2,880	7,432,013.00
Total in force December 31, 1888.....	27,714	\$68,372,882.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	15,999	\$42,681,688.00
Endowment policies in force ..	11,137	23,964,070.00
All other policies in force.....	578	1,495,955.00
Reversionary additions in force		231,169.00
Total number and amount..	<u>27,714</u>	<u>\$68,372,882.00</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	322	\$857,350.00
maturity	30	75,237.00
expiry.....	96	214,000.00
surrender	596	1,327,762.00
lapse	1,210	2,740,380.00
change and decrease.....	20	492,674.00
Not taken	606	1,724,610.00
Total.....	<u>2,880</u>	<u>\$7,432,013.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	70	\$239,500.00
Policies issued during the year.....	20	57,000.00
Total.....	90	\$296,500.00
Deduct policies ceased to be in force	4	3,500.00
In force in New Hampshire Dec. 31, 1888.	<u>86</u>	<u>\$293,000.00</u>
Losses incurred or paid during 1888.....	None.	
Premiums collected or secured without deductions:		
Cash, \$13,724.63; notes or credits, \$1,336 ..		<u>\$15,060.63</u>

AGENTS IN NEW HAMPSHIRE.

PLYMPTON & BUNTING, Boston, Mass., General Agents.

William Burleigh, Boston.

PHENIX MUTUAL LIFE INSURANCE COMPANY.

[Incorporated May, 1851. Commenced business May, 1851.]

AARON C. GOODMAN, *President*.JOHN M. HOLCOMBE, *Secretary*.

Principal office, Hartford, Conn.

CASH CAPITAL, \$100,000.00.

INCOME.

New premiums without deductions	\$52,038.78	
Renewal premiums	627,523.49	
Total	<u>\$679,562.27</u>	
Deduct amount paid for re-insurance	1,314.73	
Total premium income		\$678,247.54
Cash received for interest on:		
Mortgage loans		453,174.40
Bonds owned and dividends on stock		53,357.54
Premium notes, loans or liens		58,799.78
Other debts due the company		10,609.09
Discount on claims paid in advance		671.28
Rents for use of company's property		<u>45,460.47</u>
Total income		\$1,300,320.10
Net or ledger assets December 31, 1887		<u>10,209,841.69</u>
Total		\$11,510,161.79

DISBURSEMENTS.

Cash paid for losses and additions	\$529,362.80	
Premium notes, loans or liens used in payment of same	48,626.62	
Cash paid for matured endowments and additions.	148,687.71	
Premium notes, loans or liens used in payment of same	<u>12,508.29</u>	
Gross amount paid for losses and endowments		\$739,185.42
Cash paid for surrendered policies		73,076.89
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse		22,720.87
Surrender values, including re-converted additions applied in payment of premiums		<u>5,983.54</u>

Cash dividends paid policy holders, applied in payment of premiums	\$115,786.17
Premium notes, loans or liens used in payment of dividends	1,141.22
<i>(Total paid policy holders.....\$957,894.11.)</i>	
Cash paid stockholders for interest or dividends	24,000.00
Commissions to agents.....	55,636.12
Salaries and traveling expenses of agents.....	42,049.03
Medical examiners' fees.....	4,365.00
Salaries of officers and office employees.....	46,554.70
Taxes and fees.....	28,479.28
Rent.....	9,568.76
Furniture and fixtures for offices	219.75
Advertising.....	5,581.50
All other items, viz.:	
Books, blanks, and stationery, \$3,269.51; exchange, \$819.24; postage, \$2,955.70; legal expenses, \$3,676.76; sundry expenses, \$5,960.60; balance profit and loss account, \$1,602.44	18,284.25
Total disbursements during the year.....	\$1,192,632.50
Balance December 31, 1888.....	\$10,317,529.29

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$1,315,465.18
Loans on mortgages of real estate (first liens).....	6,456,077.39
Premium notes, loans or liens on policies in force.....	968,659.36

SCHEDULE OF STOCKS AND BONDS.

STOCKS.	Cost Value.	Market Value.
Charter Oak National Bank.....	\$19,662.00	\$21,000.00
First National Bank, Hartford, Conn.....	22,255.00	20,600.00
Etna National Bank, Hartford, Conn.....	3,500.00	3,675.00
Mercantile National Bank, Hartford, Conn..	6,950.00	8,500.00
American National Bank, Hartford, Conn..	36,893.00	39,680.00
Farmers & Mech. Nat'l Bank, Hartford, Conn	4,080.00	3,885.00
Phenix National Bank, Hartford, Conn.....	26,000.00	24,400.00
Toledo National Bank, Ohio.....	9,960.00	9,960.00
United States Bank, Hartford, Conn.....	5,000.00	12,500.00
Hartford City Gas-Light Co	7,350.00	7,100.00
Security Company, Hartford, Conn.....	10,000.00	13,500.00
New York, New Haven & Hartford R. R....	7,260.00	7,920.00

<i>BONDS.</i>		<i>Cost Value.</i>	<i>Market Value.</i>
United States bonds.....	\$132,631.25	\$144,410.00	
Erie Mortgage	120,833.75	136,750.00	
Chicago, Milwaukee & St. Paul.....	50,375.00	56,500.00	
Vermont Valley R. R. Co.....	103,750.00	107,000.00	
St. Johnsbury & Lake Champlain R. R.....	105,000.00	110,000.00	
Hartford & Conn. R. R.....	26,000.00	26,000.00	
Mattoon City, Ill.....	9,840.00	9,840.00	
Valley Falls Township, Kan.....	14,835.00	14,835.00	
Niagara Falls Park debenture.....	103,747.60	103,747.60	
Nodaway County, Miss., Court-house.....	24,840.00	24,840.00	
Independent School District, Clarinda, Ia..	5,037.50	5,037.50	
“ “ “ Chariton, Ia..	5,050.00	5,050.00	
“ “ “ Bedford, Ia..	3,030.00	3,030.00	
“ “ “ Leon, Ia.....	4,040.00	4,040.00	
“ “ “ Essex, Ia.....	4,141.00	4,141.00	
“ “ “ Harlan, Ia ...	1,515.00	1,515.00	
“ “ “ Indianola, Ia.	7,105.00	7,105.00	
“ “ “ Eldora, Ia....	3,060.00	3,060.00	
“ “ “ Sidney, Ia ...	2,050.00	2,050.00	
“ “ “ Shenand'h, Ia	2,040.00	2,040.00	
Stanbury, Mo., school district.....	11,055.00	11,055.00	
Maryville, Mo., school district.....	15,525.00	15,525.00	
Trenton, Mo., school district....	19,800.00	19,800.00	
Gault, Mo., school district.....	1,050.00	1,050.00	
Blockow, Mo., school district	629.10	629.10	
Rockport, Mo., school district.....	7,035.00	7,035.00	
Barnard, Mo., school district.....	3,517.50	3,517.50	
Eaton, Mo., school district.....	2,512.50	2,512.50	
Total values ...	\$948,955.20	\$1,004,835.20	
Cost value of stocks and bonds..		\$948,955.20	
Cash in company's office.....		856.31	
Cash deposited in banks.....		627,515.85	
ETC			
Total net or ledger assets, as per balance		\$10,317,529.29	
<i>OTHER ASSETS.</i>			
Interest due and accrued on mortgage.....		\$158,919.55	
Market value of stocks and bonds over cost		55,880.00	
Premiums due and unreported on policies in force....	\$13,889.88		
Deferred premiums on policies in force	41,134.73		
Total	\$55,024.61		
Deduct average loading (25 per cent).....	13,756.15		
Net amount of uncollected and deferred premiums ...		41,268.46	
Total assets as per books of the company		\$10,573,597.30	

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$8,893,908.00	
Deduct net value of re-insured risks.	8,890.00	
Net re-insurance reserve		\$8,885,018.00
Death losses due and unpaid.....	\$2,850.00	
Death losses and matured endowments not due.....	101,513.00	
Total policy claims		104,363.00
Premiums paid in advance.....		1,956.26
Contingent reserve on policy account.....		63,723.00
Special reserve		200,000.00
Liabilities as to policy holders.....		\$9,255,060.26
Paid-up capital	\$100,000.00	
Surplus over capital.....	1,218,537.04	
Surplus as regards policy holders		1,318,537.04
Gross liabilities		<u>\$10,573,597.30</u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand December 31, 1887.	\$1,066,266.08
Deductions during the year, as follows: Notes, loans or liens used in —	
Payment of losses and claims.....	\$61,134.91
Purchase of surrendered policies and voided by lapse	22,720.87
Payment of dividends to policy holders	1,141.22
Redeemed by maker in cash	12,609.72
Total reduction.....	<u>97,606.72</u>
Balance of note assets December 31, 1888....	<u>\$968,659.36</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	Number.	Amount.
Whole life policies.....	12,108	\$17,699,223.00
Endowment policies.....	5,538	7,366,594.00
All other policies.....	31	51,450.00
Reversionary additions.....		150,420.00

NEW POLICIES ISSUED DURING THE YEAR.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	92	\$102,682.00
Endowment policies.....	1,086	1,607,404.00

OLD POLICIES REVIVED.

Whole life policies.....	10	11,409.00
Endowment policies.....	5	3,900.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		18,533.00
Total number and amount	18,870	\$27,011,615.00
Deduct policies ceased to be in force	1,402	2,139,320.00
Total in force December 31, 1888.....	17,468	\$24,872,295.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	11,696	\$16,877,129.00
Endowment policies in force	5,751	7,805,721.00
All other policies in force.....	21	32,950.00
Reversionary additions in force..		156,495.00
Total number and amount	17,468	\$24,872,295.00

TERMINATED AS FOLLOWS.

By death	325	\$551,504.00
maturity.....	176	161,229.00
expiry	10	18,500.00
surrender.....	151	233,583.00
lapse	448	628,043.00
change and decrease	114	257,733.00
Not taken	178	288,728.00
Total	1,402	\$2,139,320.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	683	\$831,017.00
Policies issued during the year.....	130	181,900.00
Total	813	\$1,012,917.00
Deduct policies ceased to be in force.....	106	125,423.00
In force in New Hampshire Dec. 31, 1888...	707	\$887,494.00

1888.]

LIFE INSURANCE COMPANIES.

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Losses incurred during 1888	9	\$6,813.00
Losses and claims paid during 1888.....	8	\$5,813.00
Premiums collected or secured without deductions.....		\$35,560.99

AGENTS IN NEW HAMPSHIRE.

Arthur E. Morquin, Charles H. Howard, Edward J. Sisk,	Manchester. Antrim. Dover.	John H. Beacham, } John L. Beacham, } George F. Patch,	Water Village. Concord.
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PROVIDENT SAVINGS LIFE ASSURANCE SOCIETY.

[Incorporated February 25, 1875. Commenced business August 10, 1875.]

SHEPPARD HOMANS, *President*.WILLIAM E. STEVENS, *Secretary*.

Principal office, New York City.

CASH CAPITAL, \$100,000.00.

INCOME.

New premiums without deductions.....	\$190,922.71	
Renewal premiums.....	586,081.47	
Premiums paid by dividend.....	376,269.31	
Total	\$1,153,273.49	
Deduct amount paid for re-insurance	8,120.84	
Total premium income.....		\$1,145,152.65
Cash received for interest on:		
Mortgage loans.....		7,068.88
Bonds owned and dividends on stock.....		7,672.50
Premium notes, loan or liens..*		183.61
Collateral loans.....		1,971.73
Deposits in trust companies.....		1,575.84
Total income.....		\$1,163,625.21
Net or ledger assets December 31, 1887.....		389,518.48
Total		\$1,553,143.69

DISBURSEMENTS.

Total amount paid for losses and endowments.	\$401,232.51
Cash paid to annuitants.....	100.00
Cash paid for surrendered policies.....	4,628.79
Cash dividends paid policy holders, applied in payment of premiums.....	376,680.61
<i>(Total paid policy holders..... \$782,641.91.)</i>	
Commissions to agents.....	107,888.13
Salaries and traveling expenses of agents.....	13,252.42
Medical examiners' fees.. ..	7,514.94
Salaries of officers and office employees	32,266.48
Taxes and fees.....	11,685.64
Rent, home and agency offices.....	15,607.85
Commuting commissions.....	6,150.41
Furniture and fixtures for offices.....	458.38
Advertising	8,043.21
Advanced to agents to be repaid out of commissions.....	9,004.58
All other items, viz. :	
Stationery and printing, \$8,677.72; postage and telegrams, \$3,865.89; attendance fees, \$1,340; other expenses, \$3,523.58.....	17,404.19
Total disbursements during the year.....	<u>\$1,011,921.14</u>
Balance December 31, 1888.....	<u><u>\$541,222.55</u></u>

Invested in the following :

ASSETS, AS PER LEDGER ACCOUNTS.

Loans on mortgages of real estate (first liens)	\$127,400.00
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COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Troy & Boston R. R. bonds.....	\$17,100.00	\$15,000.00
Orange Mountain, N. J., Land Co. stock....	25,000.00	14,000.00
Northwestern Telegraph Co. bonds.....	20,000.00	16,000.00
Total value and amount loaned.....	<u>\$62,100.00</u>	<u>\$45,000.00</u>
Loans on collateral securities.....		45,000.00
Loans on society's policies as collateral.....		3,500.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>		<i>Cost Value. Market Value.</i>	
Macon (Ga.) Savings Bank.....	\$980.00	\$980.00	
<i>BONDS.</i>			
United States, registered	113,250.00	108,500.00	
Atchison, Jewell Co. & Western R. R.....	15,190.00	16,560.00	
Toledo, Ann Arbor & Northern Mich. R. R.	14,181.25	14,887.50	
Toledo & Ohio Central R. R.....	7,720.00	8,280.00	
Essex Passenger R. R. registered.....	11,212.50	11,212.50	
Cincinnati, Sandusky & Cleveland.....	5,075.00	5,100.00	
Englewood, N. J., Free School, Dist. No. 7..	15,477.50	15,477.50	
Seattle, Lake Shore & Eastern R. R.....	9,750.00	9,550.00	
Quebec Government.	12,362.50	12,477.50	
New York, Ontario & Western R. R.....	16,725.00	16,800.00	
Denver & Rio Grande R. R.....	23,150.00	23,250.00	
New York, Chicago & St. Louis R. R.....	18,287.50	18,287.50	
Total values.....	<u>\$263,361.25</u>	<u>\$261,362.50</u>	
Cost value of stocks and bonds.....			\$263,361.25
Cash in society's office.....			2,183.99
Cash deposited in banks.....			77,815.74
Agents' ledger balances.			21,961.57
Total net or ledger assets, as per balance			<u>\$541,222.55</u>
Deduct depreciation from cost of assets.....			1,998.75
Total net or ledger assets, less depreciation.....			<u>\$539,223.80</u>
<i>OTHER ASSETS.</i>			
Interest accrued on :			
Mortgages			\$719.07
Stocks and bonds.....			2,555.83
Collateral loans.....			507.84
Premiums due and unreported on policies in force.....	\$13,689.38		
Deferred premiums on policies in force.....	46,461.06		
Total.....	<u>\$60,150.44</u>		
Deduct average loading (20 per cent).....	12,030.08		
Net amount of uncollected and deferred premiums....			48,120.36
Total assets as per books of the company.....			<u>\$591,126.90</u>
<i>ITEM NOT ADMITTED.</i>			
Agents' balances.....			21,961.57
Total admitted assets.....			<u>\$569,165.33</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....			\$176,682.00
Death losses not due.....	\$20,000.00		
Death losses and other policy claims resisted.....	15,000.00		
Total policy claims.....			35,000.00
Liabilities as to policy holders.....			\$211,682.00
Paid-up capital.....	\$100,000.00		
Surplus over capital.....	257,483.33		
Surplus as regards policy holders.....			357,483.33
Gross liabilities.....			<u>\$569,165.33</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies	146	\$67,411.00
Endowment policies.....	80	77,150.00
All other policies	11,338	46,727,125.00

NEW POLICIES ISSUED DURING THE YEAR.

Endowment policies	63	61,200.00
All other policies	3,203	11,879,000.00

OLD POLICIES REVIVED.

All other policies.....	11	44,000.00
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OLD POLICIES INCREASED.

All other policies.....	10	18,000.00
Total number and amount.....	14,851	\$58,873,886.00
Deduct policies ceased to be in force.....	1,998	7,861,600.00
Total in force December 31, 1888	12,853	<u>\$51,012,286.00</u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	121	\$53,886.00
Endowment policies in force...	102	101,750.00
All other policies in force.....	12,630	50,856,650.00
Total number and amount..	12,853	<u>\$51,012,286.00</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	100	\$394,725.00
expiry.....	1,606	6,388,625.00
surrender.....	16	21,750.00
lapse.....	36	13,500.00
change and decrease.....		171,000.00
Not taken.....	240	872,000.00
Total.....	1,998	<u>\$7,861,600.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	1	\$1,000.00
Policies issued during the year.....	2	10,000.00
Total.....	3	<u>\$11,000.00</u>
Deduct policies ceased to be in force.....	1	1,000.00
In force in New Hampshire Dec. 31, 1888..	2	<u>\$10,000.00</u>
Premiums collected or secured without deductions		<u>\$74.72</u>

AGENTS IN NEW HAMPSHIRE.

JOHN G. LANE, Manchester, General Agent.

S. Richardson,
L. F. Clough,Claremont.
Littleton.R. W. Elwell,
G. W. Swaine,Newton.
Pittsfield.

STATE MUTUAL LIFE INSURANCE COMPANY.

[Incorporated March, 1844. Commenced business June, 1845.]

A. G. BULLOCK, *President*.H. M. WITTER, *Secretary*.

Principal office, Worcester, Mass.

INCOME.

New premiums without deductions.....	\$303,516.49
Renewal premiums.....	731,742.25
Total	<u>\$1,035,258.74</u>
Deduct amount paid for re-insurance.....	1,735.43
Total premium income	\$1,033,523.31
Cash received for interest on :	
Mortgage loans.....	38,954.00
Bonds owned and dividends on stock.....	149,961.00
Premium notes, loans or liens.....	17,842.80
Other debts due the company	15,805.86
Discount on claims paid in advance.....	688.55
Rents for use of company's property.....	908.70
Total income.....	<u>\$1,257,684.22</u>
Net or ledger assets December 31, 1887.....	4,383,027.46
Total.....	<u>\$5,640,711.68</u>

DISBURSEMENTS.

Cash paid for losses and additions.....	\$329,074.52
Cash paid for matured endowments and additions....	55,000.00
Gross amount paid for losses and endowments.....	<u>\$384,074.52</u>
Cash paid for surrendered policies.....	65,573.64
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	8,409.41
Cash dividends paid policy holders, applied in payment of premiums	161,400.03
<i>(Total paid policy holders \$619,457.60.)</i>	
Commissions to agents.....	129,603.50
Salaries and traveling expenses of agents.....	31,328.28
Medical examiners' fees.....	7,298.50

Salaries of officers and office employees.....	\$21,549.00
Taxes and fees.....	13,402.81
Advertising and all other incidental expenses.....	13,134.20
Profit and loss account	323.71

Total disbursements during the year.....	<u>\$836,097.60</u>
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Balance December 31, 1888.....	<u><u>\$4,804,614.08</u></u>
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Invested in the following :

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$86,000.00
Loans on mortgages of real estate (first liens)	813,484.00

COLLATERAL SECURITIES FOR CASH LOANS.

Market Value. Amount Loaned.

Worcester, Nashua & Rochester R. R. stock	\$31,500.00	\$25,000.00
United States bonds, 4 per cent.....	12,500.00	10,000.00
Worcester, Nashua & Rochester bonds.....	11,500.00	10,000.00
Fremont, Elkhorn & Mo. Valley bonds.....	1,150.00	
Oregon Short Line bonds.....	1,000.00	
Chicago, Kan. & Western R. R. Co. bonds.	28,900.00	25,000.00
Chicago water loan.....	3,750.00	3,000.00
Fitchburg R. R. stock.....	8,475.00	6,000.00
Westminster National Bank.....	4,500.00	4,000.00
Norwich & Worcester stock.....	17,600.00	16,000.00
Boston & Albany stock.....	2,400.00	3,800.00
Fitchburg R. R. stock.....	2,250.00	
Mass. & Su. Consolidated Co. bonds.....	30,000.00	27,000.00
Midland R. R. Co. bonds.....	2,230.00	2,000.00
Worcester, Nashua & Rochester bonds.....	6,300.00	5,000.00
Chicago, Burlington & Quincy bonds.....	1,800.00	1,500.00
Total value and amount loaned.....	<u>\$165,855.00</u>	<u>\$138,800.00</u>

Loans on collateral securities.....	138,300.00
Loans on company's policies as collateral.....	225,840.00
Premium notes, loans or liens on policies in force.....	114,555.11

SCHEDULE OF STOCKS AND BONDS.

STOCKS.

Cost Value. Market Value.

Providence & Worcester R. R.....	\$56,393.50	\$94,250.00
Chicago & Northwestern R. R.....	14,012.50	14,100.00
Morris & Essex R. R.....	25,450.00	28,000.00
Chicago, Rock Island & Pacific R. R.....	35,085.00	29,400.00
Boston & Albany R. R.....	85,351.50	100,000.00
Old Colony R. R.....	43,874.23	51,000.00
Boston & Maine R. R.....	45,716.25	43,750.00
Chicago, Burlington & Quincy R. R.....	13,462.50	11,880.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Illinois Central R. R.....	\$34,183.34	\$31,320.00
Chicago & Alton R. R.....	27,800.00	27,000.00
Norwich & Worcester R. R.....	42,037.75	43,750.00
New York, New Haven & Hartford R. R ...	35,205.50	41,125.00
New London & Northern R. R.....	18,000.00	19,500.00
State Safe Deposit Co., Worcester.....	4,500.00	4,500.00
Central National Bank, Worcester.....	2,500.00	3,750.00
First National Bank, Boston.....	5,000.00	11,500.00
City National Bank, Worcester ..	4,000.00	5,200.00
Third National Bank, Springfield.....	10,000.00	17,500.00
Hild & Leather National Bank, Boston....	11,575.00	13,440.00
Shawmut National Bank, Boston.....	6,725.00	8,710.00
Atlantic National Bank, Boston.....	24,723.75	25,350.00
Grafton National Bank.....	7,900.00	9,480.00
Eliot National Bank, Boston.....	4,075.50	5,000.00
Quinsigamond National Bank, Worcester..	10,090.00	11,000.00
Howard National Bank, Boston.....	17,115.50	18,370.00
Leicester National Bank.....	5,525.00	6,250.00
Northboro' National Bank.....	2,000.00	2,240.00
Continental National Bank, Boston... ..	10,012.50	12,000.00
Republic National Bank, Boston.....	7,562.50	10,500.00
Webster National Bank, Boston.....	5,275.00	5,450.00
Redemption National Bank, Boston.....	15,985.00	15,180.00
Tremont National Bank, Boston.....	13,300.00	11,000.00
Suffolk National Bank, Boston.....	3,350.00	3,100.00
Worcester National Bank.....	8,589.50	9,450.00
Millbury National Bank.....	8,000.00	10,000.00
Wachusetts National Bank, Fitchburg.....	2,500.00	5,000.00
Revere National Bank, Boston.....	6,756.25	8,710.00
Adams National Bank, North Adams.....	13,122.50	13,320.00

BONDS.

United States.....	206,000.00	237,500.00
Worcester & Nashua R. R.....	61,500.00	62,400.00
Fitchburg R. R.....	123,625.00	119,100.00
Boston, Clinton, Fitch. & New Bedford R. R	33,000.00	33,000.00
New York, Lackawanna & Western R. R....	73,271.25	79,500.00
Chicago & Northwestern R. R.....	99,427.50	106,160.00
Michigan Central R. R.....	145,300.00	158,300.00
N. Y. Central & Hudson River R. R.....	53,400.00	53,800.00
Chicago, Burlington & Quincy R. R.....	28,400.00	28,700.00
New York & New England R. R.....	10,662.50	12,500.00
Dayton & Michigan R. R.....	5,000.00	5,250.00
Chicago, Milwaukee & St. Paul R. R.....	29,750.00	30,500.00
Evansville, Terre Haute & Chicago R. R....	10,250.00	10,600.00
Pittsburg, Cleveland & Toledo R. R.....	21,290.00	22,000.00
Chicago & Eastern Illinois R. R.....	49,710.00	58,500.00
Boston, Barre & Gardner R. R.....	20,000.00	20,400.00
Strawn & Indiana State Line R. R.....	25,000.00	26,250.00
Central Pacific R. R.....	30,000.00	34,800.00
Burlington & Missouri River R. R.....	18,600.00	19,000.00
Cleveland, Col., Cin. & Ind. R. R.....	19,800.00	23,400.00
Baltimore & Ohio R. R.....	50,000.00	52,500.00
St. Paul, Minneapolis & Manitoba R. R....	57,625.00	57,800.00
Lake Erie & Western R. R.....	51,500.00	54,000.00
Housatonic R. R.....	77,750.00	79,500.00

Cost Value. Market Value.

Long Island City & Flushing R. R.....	\$50,000.00	\$52,000.00
Atlantic Avenue R. R.....	15,675.00	15,600.00
Third Avenue R. R.....	53,750.00	52,000.00
Chicago, Rock Island & Pacific R. R.....	40,000.00	41,600.00
Terre Haute & Indianapolis R. R.....	25,000.00	27,000.00
Chicago & Western Indiana R. R.....	27,500.00	29,250.00
Portland, city.....	19,000.00	24,400.00
Northampton, city.....	23,500.00	26,250.00
Meriden, city.....	18,140.00	18,260.00
Bangor, city.....	26,375.00	31,000.00
Lawrence, city.....	75,000.00	79,000.00
Newton, city.....	26,750.00	30,000.00
Newburyport, city.....	6,300.00	6,060.00
Lowell, city.....	62,500.00	62,600.00
Portsmouth, city.....	19,260.00	19,980.00
Dover, city.....	24,610.00	25,530.00
Worcester, city.....	86,600.00	86,400.00
Holyoke, city.....	11,200.00	10,200.00
Providence, city.....	25,875.00	25,500.00
Boston, city.....	75,125.00	78,750.00
Pawtucket, city.....	26,750.00	27,000.00
Lynn, city.....	10,500.00	10,500.00
Clinton, city.....	41,400.00	40,800.00
Beverly, city.....	51,375.00	52,000.00
St. Paul, city.....	50,500.00	50,000.00
Cincinnati, city.....	9,640.00	9,360.00
District of Columbia.....	13,300.00	13,000.00
Minneapolis, city.....	41,922.50	41,820.00
St. Louis, city.....	68,450.00	66,600.00
Toledo, city.....	30,825.00	31,200.00
Omaha, city.....	30,375.00	31,500.00
Quincy Water Co.....	20,000.00	20,400.00

Total values.....	<u>\$3,094,723.84</u>	<u>\$3,304,095.00</u>
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Cost value of stocks and bonds.....	\$3,094,723.84
Cash in company's office.....	1,979.67
Cash deposited in banks.....	108,006.46
Loans to cities and towns.....	64,500.00
Loans to corporations.....	157,225.00

Total net or ledger assets, as per balance	<u>\$4,804,614.08</u>
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OTHER ASSETS.

Interest due and accrued on:	
Mortgages.....	\$9,225.00
Stocks and bonds.....	34,980.00
Collateral loans.....	4,264.75
Premium notes, loans or liens	4,530.25
Market value of stocks and bonds over cost	209,371.16
Total assets as per books of the company.....	<u>\$5,066,985.24</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$4,261,912.00
Death losses and matured endowments not due.....	6,500.00
Liabilities as to policy holders.....	\$4,268,412.00
Surplus as regards policy holders.....	798,573.24
Gross liabilities.....	<u>\$5,066,985.24</u>

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887....	\$99,292.18	
Premium notes, loans or liens received during the year	<u>224,138.19</u>	
Total		\$323,430.37
Deductions during the year, as follows: Notes, loans or liens used in —		
Purchase of surrendered policies and voided by lapse...	\$8,409.41	
Redeemed by maker in cash.....	<u>200,465.85</u>	
Total reduction		208,875.26
Balance of note assets December 31, 1888.....		<u>\$114,555.11</u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	3,695	\$9,006,156.00
Endowment policies.....	5,102	14,202,456.00
Reversionary additions.....		179,228.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	208	832,500.00
Endowment policies	1,560	4,269,500.00

OLD POLICIES REVIVED.

Whole life policies.....	1	5,000.00
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OLD POLICIES INCREASED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.		\$2,817.00
Endowment policies.....		11,039.00

ADDITIONS BY DIVIDENDS.

Reversionary additions.....		31,346.00
Total number and amount.....	10,566	\$28,540,042.00
Deduct policies ceased to be in force.....	740	1,874,857.00
Total in force December 31, 1888.	9,826	\$26,665,185.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	3,665	\$9,223,754.00
Endowment policies in force.....	6,158	17,245,129.00
Reversionary additions in force.....		196,302.00
Total number and amount....	9,826	\$26,665,185.00

TERMINATED AS FOLLOWS.

By death.....	150	\$321,059.00
maturity.....	33	55,000.00
expiry.....	31	76,500.00
surrender.....	215	534,249.00
lapse.....	162	323,500.00
change and decrease.....		172,549.00
Not taken.	149	392,000.00
Total	740	\$1,874,857.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	94	\$160,520.00
Policies issued during the year.....	6	13,000.00
Total.....	100	\$173,520.00
Deduct policies ceased to be in force.....	1	1,000.00
In force in New Hampshire Dec. 31, 1888.....	99	\$172,520.00
Losses incurred and paid during 1888.....	1	\$1,000.00
Premiums collected or secured without deductions		\$5,079.12

AGENTS IN NEW HAMPSHIRE.

Frank W. Sargent, Frank L. Porter,	Manchester. Lawrence, Mass.	Edward L. Sartelle,	Lowell, Mass.
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TRAVELERS' LIFE INSURANCE COMPANY.

[Incorporated June 17, 1863. Commenced business April 1, 1864, Accident; July, 1866, Life.]

JAMES G. BATTERSON, *President*.

RODNEY DENNIS, *Secretary*.

Principal office, Hartford, Conn.

CASH CAPITAL, \$600,000.00.

INCOME.

Accident premiums	\$2,190,507.98	
New premiums without deductions	200,961.57	
Renewal premiums	1,013,795.45	
Annuities	5,100.00	
Total	\$3,410,365.00	
Deduct amount paid for re-insurance	8,898.65	
Total premium income		\$3,401,466.35
Cash received for interest on :		
Mortgage loans		263,242.25
Bonds owned and dividends on stock.		235,162.37
Other debts due the company		29,751.16
Rents for use of company's property		33,302.86
Profits on bonds or stocks sold		24,475.00
Total income		\$3,987,399.99
Net or ledger assets December 31, 1887		11,029,509.96
Total		\$15,016,909.95

DISBURSEMENTS.

Cash paid for losses and additions	\$1,505,085.66	
Cash paid for matured endowments and additions ..	56,155.00	
Gross amount paid for losses and endowments		\$1,561,240.66
Cash paid to annuitants		400.00
Cash paid for surrendered policies		78,407.53
<i>(Total paid policy holders</i> \$1,640,048.19.)		
Cash paid stockholders for interest or dividends		96,000.00
Commissions to agents		696,535.04
Salaries and traveling expenses of agents		119,824.55
Medical examiners' fees		20,069.77
Salaries of officers and office employees		156,775.91

Taxes and fees	\$44,935.34
Rent.....	27,790.60
Furniture and fixtures for offices.....	827.11
Advertising	116,985.15
Profit and loss account.....	150,858.12

All other items, viz.:

Books, blanks, and stationery, \$27,621.91; express charges, \$8,208.44; loss expenses, \$16,116.48; expenses, \$14,702.90; exchange, \$3,440.82; postage, \$19,080.02	89,170.57
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Total disbursements during the year..... \$3,159,820.35

Balance December 31, 1888..... \$11,857,089.60

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$1,551,479.84
Loans on mortgages of real estate (first liens).....	3,425,476.50

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Phoenix Ins. Co. stock, Hartford.....	\$925.00	\$500.00
Chicago, Bur. & Quincy R. R. Co. stock..	550.00	415.00
Hartford Silver Plate Co. stock	20,000.00	9,990.00
Hartford Trust Co. stock.....	3,125.00	3,000.00
Bank of North America stock, N. Y.....	725.00	
Galveston, Harris. & S. A. R. R. bonds..	59,840.00	50,000.00
City of Jacksonville, Fla., bonds	1,000.00	60.00
Willimantic Linen Co. stock.....	21,750.00	19,000.00
First National Bank, Alamosa, Col., stock	6,250.00	5,000.00
North Poudre Land & Canal Co. stock....	650.00	500.00
Note of Richm'd Iron W'ks, Mass., secured	120,000.00	65,000.00
Eagle Lock Co., Terryville, Conn	360.00	450.00
So. N. E. Tel. Co., New Haven, Conn., stock	140.00	
Pratt & Cady Co., Hartford, Conn., stock.	4,000.00	3,000.00
Jewell Pin Co., Hartford, Conn., stock...	500.00	
Billings & Spencer Co., Hartford, stock...	1,000.00	
Meriden Britannia Co. stock	80,820.00	57,500.00
R. Wallace & Sons Mfg. Co. Wall'fd, Conn	4,850.00	
Hall, Elton & Co. Mfg. Co., Wall'fd, Conn	7,500.00	
Wilcox & White Organ Mfg. Co., Meriden	7,500.00	
Cheshire Brass Mfg. Co., Cheshire, Conn	7,500.00	
Winchester Arms Co., New Haven, Conn..	48,750.00	25,000.00
Trenton Water Co., Mo., bonds	50,000.00	
Parsons Light & Heat Co., Kan.....	24,000.00	
Total value and amount loaned.....	<u>\$471,735.00</u>	<u>\$239,415.00</u>

Loans on collateral securities..... 239,415.00

Loans on company's policies as collateral..... 164,255.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
Hartford City Gas-Light Co.....	\$28,635.01	\$15,000.00
Western Union Telegraph Co.....	18,192.00	16,975.88
North Poudre (Col.) Land & Canal Co....	27,950.00	27,950.00
Grand Valley (Col.) Canal Co.....	24,750.00	24,750.00
Monte Vista (Col.) Canal Co.....	28,650.00	24,875.00
National Ex. Bank, Hartford, Conn.....	43,046.50	33,600.00
Farm. & Mech. Nat'l Bank, Hartford, Conn	34,454.87	24,600.00
American Nat'l Bank, Hartford, Conn....	43,599.00	41,580.00
City National Bank, Hartford, Conn.	44,664.75	37,200.00
Phoenix Nat'l Bank, Hartford, Conn.....	94,479.50	75,803.00
Ætna Nat'l Bank, Hartford, Conn.....	29,601.62	24,805.00
Mercantile Nat'l Bank, Hartford, Conn....	20,182.00	17,000.00
Hartford Nat'l Bank, Hartford, Conn.....	159,511.25	150,000.00
First National Bank, Hartford, Conn.....	11,088.38	10,600.00
Charter Oak Nat'l Bank, Hartford, Conn..	19,982.25	15,785.00
New Britain National Bank, Conn.....	17,540.00	21,000.00
Thames Nat'l Bank, Norwich, Conn.....	35,000.00	35,000.00
First Nat'l Bank, Wallingford, Conn.....	31,800.00	31,800.00
Metropolitan National Bank, N. Y.....	7,615.63	360.00
American Ex. National Bank, N. Y.....	21,413.00	28,800.00
Merchants' Ex. Nat'l Bank, N. Y.....	11,912.79	14,040.00
Nassau Bank, N. Y.....	7,250.00	7,600.00
National Bank of Commerce, N. Y.....	13,975.00	17,800.00
Nat'l Shoe & Leather Bank, N. Y.....	4,455.00	4,950.00
Nat'l Bank of Com'onwealth, Boston, Mass	11,212.75	14,500.00
Atlas National Bank, Boston, Mass.....	11,900.00	12,300.00
Citizens' Bank, Minneapolis, Minn.....	5,000.00	5,250.00
St. Paul Nat'l Bank, St. Paul, Minn.....	10,000.00	11,500.00
First National Bank, Morris, Minn.....	32,540.00	27,600.00
American Nat'l Bank, Kansas City, Mo...	10,000.00	11,500.00
Conn. Trust & Safe Dep. Co., Hartfd, Conn	29,400.00	49,000.00
Hartford Trust Co., Conn.....	48,300.15	61,000.00
Security Co., Hartford, Conn.....	14,736.25	18,900.00
N. Y. Central & Hudson River R. R. Co..	160,425.00	163,125.00
Delaware, Lacka. & Western R. R. Co....	33,656.25	35,875.00
Pennsylvania R. R. Co.....	237,305.17	214,500.00
Chicago, Rock Island & Pacific R. R. Co..	71,075.00	53,900.00
Chicago, Burlington & Quincy R. R. Co..	122,927.25	121,000.00
Missouri Pacific R. R. Co.....	103,537.50	74,000.00
Illinois Central R. R. Co.....	72,464.58	69,600.00
Union Pacific R. R. Co.....	23,462.50	12,800.00
Central Pacific R. R. Co.....	46,612.50	17,500.00
Chicago, Milwaukee & St. Paul R. R. Co..	215,884.75	179,562.50
Chicago & Northwestern R. R. Co.....	260,043.75	243,950.00
Chicago & Alton R. R. Co.....	22,318.75	28,140.00
New York & New England R. R. Co.....	10,955.00	11,400.00
Illinois Central R. R. Co.....	8,644.00	9,500.00
<i>BONDS.</i>		
United States bonds.....	160,639.25	162,562.50
Province of Manitoba, Canada.....	79,443.47	80,192.94
Tennessee State.....	26,677.50	20,480.00
Georgia State.....	29,330.00	29,120.00

Cost Value. Market Value.

Johnson County, Ill.....	\$33,185.61	\$33,000.00
Wayne County, Ill.....	16,625.82	17,000.00
White County, Ill.....	8,060.44	8,500.00
Otter Tail County, Minn.....	45,500.00	50,000.00
Butler County, Neb., R. R.....	57,085.00	56,840.00
Trail County, Dak., school district.....	1,500.00	1,500.00
Clark County, Dak., school district.....	5,952.00	6,200.00
Rio Arriba County, N. M.....	14,896.00	15,200.00
Escambia County, Fla.....	9,360.00	9,270.00
Laramie County, Wyo.....	50,000.00	50,000.00
Montrose County, Col.....	5,200.00	5,200.00
Riley County, Kan.....	48,000.00	48,000.00
Pendleton County, Ky., turnpike.....	21,200.00	21,200.00
School District No. 84, Cass Co., Dak.....	1,500.00	1,500.00
School District No. 7, Cass Co., Dak.....	23,000.00	23,000.00
School District No. 1, Montrose Co., Col..	8,000.00	8,000.00
Middletown, Conn., town.....	10,786.67	10,500.00
Bloomfield, Conn., town.....	30,000.00	30,000.00
Parkdale, Ont., town.....	11,765.00	12,000.00
Collinswood, Ont., town.....	8,850.00	9,381.00
Almonte, Ont., town.....	14,531.33	14,900.00
Paris, Ont., town.....	8,567.75	8,880.00
Windsor, Ont., town.....	11,124.84	11,252.23
Coaticook, Quebec, town.....	25,375.00	25,750.00
Pitkin, Col., town.....	3,500.00	3,500.00
Lakin, Kan., township.....	7,455.00	7,700.00
Lancaster, Kan., township.....	14,850.00	15,000.00
Walnut, Kan., township.....	18,000.00	18,000.00
Rock Creek, Kan., township.....	25,000.00	25,000.00
Parker, Kan., township.....	24,500.00	25,000.00
Canton, Kan., township.....	15,200.00	16,000.00
Elk, Kan., township.....	13,125.00	13,125.00
Blaine, Kan., township.....	13,200.00	13,200.00
Crawford, Kan., township.....	23,875.00	25,000.00
Oswego, Kan., township.....	10,000.00	10,000.00
Howard, Kan., township.....	20,441.43	24,000.00
Paw Paw, Kan., township.....	6,813.50	8,000.00
Frankfort, Dak., township.....	1,455.00	1,500.00
Indianapolis, Ind., city.....	7,766.66	10,000.00
Jacksonville, Fla., city.....	4,000.00	4,000.00
Winnipeg, Man., city.....	54,470.00	54,500.00
Pueblo, Col., city.....	22,736.25	22,736.25
Colorado City, Col.....	5,000.00	5,000.00
Canon City, Col., city.....	30,070.00	30,070.00
Lexington, Ky., city.....	30,600.00	30,600.00
Council Bluffs, Ia., city.....	35,350.00	35,350.00
Falls City, Neb., city.....	22,560.00	22,560.00
Clyde City, Kan., city.....	4,375.00	4,375.00
Kansas City, city.....	36,400.00	36,400.00
Topeka, Kan., city.....	34,686.84	44,000.00
Ottawa, Kan., city.....	8,160.00	8,160.00
Parsons, Kan., city.....	20,000.00	20,000.00
Arkansas, Kan., city.....	26,250.00	26,250.00
Richmond, Va., city.....	30,937.50	29,700.00

	<i>Cost Value.</i>	<i>Market Value.</i>
Elizabeth, N. J., city.....	\$9,593.33	\$5,000.00
Lima, O., city.....	15,980.00	16,000.00
Sherbrooke, Quebec, city.....	30,750.00	31,500.00
Quebec, Quebec, city.....	49,000.00	51,000.00
Hartford, Conn., city.....	10,600.00	10,100.00
Montreal, Quebec, city.....	13,647.83	15,730.00
Montreal, Quebec, city.....	13,532.10	13,520.00
Montreal, Quebec, city.....	21,010.40	23,600.00
Montreal, Quebec, city.....	15,450.00	16,350.00
Montreal, Quebec, city.....	4,477.50	4,590.00
St. Thomas, Ont., city.....	33,765.00	34,500.00
Fort Morgan (Col.) Land & Canal Co.....	120,000.00	
Del Norte (Col.) Land & Canal Co.....	133,825.00	
Uncompahgre (Col.) Canal Co.....	42,000.00	
Pullman Palace Car Co.....	32,240.00	31,150.00
Fort Smith & Van Buren Bridge Co.....	52,500.00	52,500.00
Grape Creek Coal Co., Ill.....	27,550.00	27,550.00
Western Union Telegraph Co.....	48,375.00	50,625.00
Lake Shore & Michigan So. R. R. Co.....	2,110.00	2,435.00
Atlantic & Pacific R. R. Co.....	43,000.00	40,312.50
Toledo, Ann Arbor & G. T. R. R. Co.....	25,500.00	26,437.50
Staten Island Rapid Transit R. R. Co.....	29,000.00	27,625.00
Chicago, Milwaukee & St. Paul R. R. Co.	65,000.00	63,125.00
St. Louis & San Francisco R. R. Co.....	100,500.00	117,000.00
Stillwater & St. Paul R. R. Co.....	32,690.00	32,200.00
Knoxville & Ohio R. R. Co.....	40,850.00	41,400.00
Keokuk & Des Moines R. R. Co.....	4,950.00	10,500.00
Columbus & Western R. R. Co.....	53,000.00	54,000.00
Canadian Pacific R. R. Co.....	49,000.00	53,500.00
Chicago, Burlington & Quincy R. R. Co..	3,000.00	5,550.00
Mobile & Birmingham R. R. Co.....	23,125.00	23,125.00
Oxford & Clarksville R. R. Co.....	48,750.00	48,750.00
Duluth & Manitoba R. R. Co....	50,437.50	51,250.00
Cœur d' Alene Railway & Navigation Co.	51,250.00	51,250.00
Total values.....	<u>\$4,975,541.22</u>	<u>\$4,538,606.30</u>
Cost value of stocks and bonds.....		\$4,975,541.22
Cash in company's office.....		6,153.85
Cash deposited in banks.....		764,765.42
Bills receivable.....		278,029.64
Agents' ledger balances.....		<u>451,973.13</u>
Total net or ledger assets, as per balance		\$11,857,089.60
Deduct depreciation from cost of assets.....		<u>1,050,038.79</u>
Total net or ledger assets, less depreciation		\$10,807,050.81

OTHER ASSETS.

Interest accrued on mortgages		\$72,360.46
Premiums due and unreported on policies in force....	\$112,086.52	
Deferred premiums on policies in force....	153,110.55	
Total.....	\$265,197.07	
Deduct average loading.....	31,823.65	
Net amount of uncollected and deferred premiums....		233,373.42
Total assets as per books of the company		\$11,112,784.69

ITEMS NOT ADMITTED.

Agents' balances.....	\$451,973.13	
Bills receivable.....	278,029.64	
Total items not admitted.....		730,002.77
Total admitted assets.....		\$10,382,781.92

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$7,461,152.00	
Deduct net value of re-insured risks.....	25,747.00	
Net re-insurance reserve for life policies.....		\$7,435,405.00
Re-insurance reserve, at 50 per cent of accident premiums in force		736,416.51
Reserve for indemnity contracts of life policies.....		5,000.00
Death losses and matured endowments not due.....	\$85,329.00	
Death losses and other policy claims resisted.....	70,500.00	
Total policy claims.....		155,829.00
Due for salaries, rents, and office expenses.		10,000.00
Liabilities as to policy holders		\$8,342,650.51
Paid-up capital	\$600,000.00	
Surplus over capital	1,440,131.41	
Surplus as regards policy holders		2,040,131.41
Gross liabilities.....		\$10,382,781.92

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies	14,255	\$26,512,614.00
Endowment policies.....	5,088	9,429,494.00
All other policies	497	1,797,785.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies	1,634	3,834,109.00
Endowment policies	976	1,959,514.00
All other policies	536	1,769,092.00

OLD POLICIES REVIVED.

Whole life policies.....	24	46,370.00
Endowment policies.....	6	22,073.00
All other policies.....	1	10,000.00

OLD POLICIES INCREASED.

Whole life policies		16,000.00
Total number and amount.....	23,017	\$45,397,051.00
Deduct policies ceased to be in force	1,900	4,258,690.00
Total in force December 31, 1888.....	21,117	\$41,138,361.00

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	14,713	\$27,747,048.00
Endowment policies in force.....	5,522	10,310,228.00
All other policies in force	882	3,081,085.00
Total number and amount.....	21,117	\$41,138,361.00

LIFE POLICIES TERMINATED AS FOLLOWS.

By death.....	208	\$438,748.00
maturity.....	49	57,421.00
expiry	3	12,000.00
surrender.....	173	269,716.00
lapse.....	948	2,094,250.00
change and decrease.....	203	602,763.00
Not taken	316	783,792.00
Total.....	1,900	\$4,258,690.00

ACCIDENT POLICIES IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Accident policies in force December 31, 1887....	77,939	\$228,409,232.00
Accident policies issued in 1888	111,404	304,049,375.00
Total number and amount	189,343	\$532,458,607.00
Accident policies ceased to be in force.....	111,906	290,854,939.00
Total in force December 31, 1888.....	77,437	\$241,603,668.00

ACCIDENT POLICIES TERMINATED AS FOLLOWS.

By death..	256	\$535,850.00
expiry	111,650	290,319,089.00
Total.....	111,906	\$290,854,939.00

LIFE BUSINESS IN NEW HAMPSHIRE.

Life policies in force December 31, 1887.....	191	\$294,078.00
Life policies issued during the year	23	28,700.00
Total.....	214	\$322,778.00
Life policies ceased to be in force.....	13	19,397.00
In force in New Hampshire Dec. 31, 1888 ...	201	\$303,381.00
Losses incurred during 1888.....	3	\$3,334.00
Losses and claims paid during 1888.....	2	\$1,500.00

ACCIDENT BUSINESS IN NEW HAMPSHIRE.

Accident policies in force December 31, 1887	2,195	\$3,116,609.00
Accident policies issued during the year.....	2,127	3,466,617.00
Total	4,322	\$6,583,226.00
Accident policies ceased to be in force	2,833	3,809,932.00
In force in New Hampshire, Dec. 31, 1888...	1,489	\$2,773,294.00
Losses incurred and paid during 1888	411	\$13,554.82
Premiums collected or secured without deductions:		
Life, \$7,415.40; accident, \$26,241.55.....		\$33,656.95

AGENTS IN NEW HAMPSHIRE.

G. H. Aldrich,	Keene.	Edward M. Abbott,	Berlin.
Herbert C. Aldrich,	Keene.	Elliott W. Baker,	Antrim.
Allen J. Barrett,	Littleton.	Isaac H. Chandler,	Concord.
E. A. Crawford,	Dover.	A. D. Tolles,	Dover.
E. A. Leighton,	Dover.	William G. Everett,	Manchester.
C. O. Eastman,	Claremont.	G. H. Everett,	Laconia.
Isaac K. Gage,	Penacook.	Alanson C. Haines,	Newmarket.
Luther Gage,	Penacook.	Edward G. Leach,	Franklin.
W. G. Buxton,	Penacook.	James E. Barnard,	Franklin.
Frank A. McKean,	Nashua.	Joseph P. Morse,	Portsmouth.
John B. Pike,	Lebanon.	Rufus P. Staniels,	Concord.
George B. Prescott,	Dover.	W. H. Allison,	Concord.
C. A. Haseltine,	Dover.	S. C. Eastman,	Concord.
F. R. Stratton,	Keene.	Charles L. Gilmore,	Concord.
Charles E. Leavitt,	Laconia.	Ernest L. Goodwin,	Lake Village.
Fred H. Nourse,	Lancaster.	John T. Boardman,	Lebanon.
John C. Eastman,	Littleton.	Henry L. Sanderson,	Nashua.
Fred K. Longley,	Peterborough.	Miss Nellie B. Wheelock,	Nashua.
Timothy C. Crowley,	Portsmouth.	Frank E. Wadleigh,	Plymouth.
N. T. Kimball,	Rochester.	Clarence W. Adams,	Tilton.
Winfield S. Aldrich,	Whitefield.	Edward W. Abbe,	Boston, Mass.
R. N. Holman,	Middleb'y, Mass.	Seymour H. Wood,	St. Albans, Vt.

UNION MUTUAL LIFE INSURANCE COMPANY.

(Incorporated July 17, 1848. Commenced business October 1, 1849.)

JOHN E. DEWITT, *President.*ARTHUR L. BATES, *Secretary.*

Principal office, Portland, Maine.

INCOME.

New premiums without deductions.....	\$713,639.90	
Deduct amount paid for re-insurance.....	1,751.71	
Total premium income.....		\$711,888 19
Cash received for interest on:		
Mortgage loans.....		50,116.08
Bonds owned and dividends on stock.....		127,119.74
Premium notes, loans or liens.....		30,668.90
Other debts due the company.....		16,135.15
Discount on claims paid in advance.....		271.23
Rents for use of company's property.....		18,357.53
Profit and loss (net).....		8,962.95
Total income.....		\$963,519.77
Net or ledger assets December 31, 1887.....		5,823,627.45
Total.....		\$6,787,147.22

DISBURSEMENTS.

Cash paid for losses and additions.....	\$449,002.79
Cash paid for matured endowments and additions....	<u>142,598.69</u>
Gross amount paid for losses and endowments.....	\$591,601.48
Cash paid to annuitants	233.27
Cash paid for surrendered policies....	7,225.64
Premium notes, loans or liens used in purchase of surrendered policies and voided by lapse.....	28,347.35
Surrender values, including re-converted additions applied in payment of premiums.....	11,888.19
Cash dividends paid policy holders, \$1,800.85; applied in payment of premiums, \$36,629.78.	38,430.63
Premium notes, loans or liens used in payment of dividends	12,425.00
<i>(Total paid policy holders.....\$690,151.56)</i>	
Commissions to agents.....	61,951.10
Salaries and traveling expenses of agents.....	100,941.85
Medical examiners' fees.....	13,589.00
Salaries of officers and office employees.....	46,466.52
Taxes and fees.....	14,234.91
Rent.....	10,125.10
Commuting commissions.....	8,730.03
Furniture and fixtures for offices.....	959.22
Advertising	10,310.36
All other items, viz.:	
Printing and stationery, \$11,389.27; postage and exchange, \$3,674.19; traveling expenses of officers and clerks, \$2,822.66; legal expenses, \$4,520.72; miscellaneous expenses, \$11,772.55.....	<u>34,179.39</u>
Total disbursements during the year.....	<u>\$991,639.04</u>
Balance December 31, 1888.....	<u>\$5,795,508.18</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Appraised value of real estate unincumbered	\$1,288,976.92
Loans on mortgages of real estate (first liens)	1,156,678.80

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Westbrook Mfg. Co. stock.....	\$28,000.00	\$16,600.00
Maine Central R. R. Co. bonds.....	5,280.00	4,000.00
Lewiston & Auburn Horse R. R. stock.....	1,125.00	288.38
Central Wharf stock, Portland, Me	24,000.00	12,000.00
Portland Water Co. bonds.....	3,300.00	4,000.00
Maine Central R. R. bonds	1,320.00	
First Nat'l Bank, Houlton, Me., stock.....	1,250.00	1,000.00
Oregon Short Line 1st mortgage bonds....	11,300.00	9,000.00
Portland Water Co. stock.....	39,050.00	24,000.00
Maine Central R. R. bonds.....	4,620.00	3,500.00
Pejepscot Water Co. stock.....	5,000.00	4,500.00
Portland Water Co. stock.....	8,880.00	5,000.00
Portland & Rochester R. R. stock.....	5,250.00	5,000.00
Portland Trust Co. stock.....	6,720.00	5,600.00
First National Bank, Wiscasset, stock.....	650.00	535.00
Flint & Pere Marquette R. R. stock.....	6,930.00	5,000.00
Casco National Bank, Portland, stock.....	1,168.00	550.00
Canal National Bank, Portland, stock.....	318.00	230.00
Maine Central R. R. Co. bonds.....	2,400.00	5,000.00
Northern Pacific R. R. land grant.....	2,360.00	
City of Portland, Maine, bonds.....	1,135.00	
Leeds & Farmington R. R. 1st mort. bonds.	1,100.00	700.00
Southern Kansas R. R. 1st mort. bonds....	475.00	256.00
Central Wharf stock.....	9,000.00	4,200.00
Delaware & Hudson Canal Co. stock	3,930.00	6,750.00
National Park Bank, New York, stock.....	5,220.00	
Chicago & West Michigan R. R. bonds.....	950.00	1,968.75
New York & New England R. R. bonds.....	1,140.00	
Chicago, Burlington & N. R. R. bonds.....	950.00	20,000.00
Maine Central R. R. bonds.....	16,000.00	
Ogdensburg & L. Champlain R. R. bonds.	4,818.75	843.75
St. Louis & San Francisco R. R. "B" bonds.	1,152.00	
Southern Kansas R. R. (T. D.) bonds.....	4,390.00	4,552.08
City of Belfast, Me., bonds.....	200.00	
Cert. Profits, Atlantic Mutual Ins. Co.....	970.00	
Southern Kansas R. R. stock	475.00	265.00
New England R. R. Preferred stock.....	5,242.50	4,950.00
Maine Central R. R. bonds.....	666.00	
Maine Central R. R. bonds.....	1,200.00	1,000.00
First Nat'l Bank, Houlton, Me., stock.....	1,250.00	800.00
Chicago, Kansas & Western bonds....	890.00	6,000.00
Atchison, Topeka & Santa Fe bonds.....	990.00	
Atchison, Topeka & Santa Fe stock.....	585.00	
New York & New England R. R. stock.....	1,747.50	7,127.05
Chicago, St. P., Minn. & Omaha R. R. stock	920.00	
Chicago & Northwestern R. R. stock.....	2,160.00	7,127.05
Ohio & Mississippi (S. P. G. Div.) bonds..	2,130.00	
Chicago, St. Louis & Pittsburg bonds....	970.00	7,127.05
Wisconsin Central (1st series) bonds.....	870.00	
Mt. Vernon Water Co. 1st mort. bonds....	1,000.00	7,127.05
Southern Kansas R. R. bonds.....	665.00	
Memphis & Charleston R. R. bonds.....	1,060.00	7,127.05
Oregon R. R. & Navigation Co. bonds ...	1,025.00	
Flint & Pere Marquette Preferred stock...	990.00	

Market Value. Amount Loaned.

Chicago & West Michigan 1st mort. bonds	\$950.00	\$445.00
Portland, Maine, bonds.....	1,250.00 }	
St. Paul, Minn., bonds.....	1,250.00 }	1,500.00
Camden & Rockland Water Co. stock.....	15,625.00	10,000.00
Wisconsin Central R. R. (1st series) bonds	1,740.00	
Oregon Short Line 1st mortgage bonds....	1,122.50 }	4,500.00
City of Chicago (River Improvements) ...	2,136.00	
Sundry Mortgages on Real Estate.....	50,000.00	25,000.00
Denver City Cable R. R. bonds, gold.....	23,000.00	20,000.00
Camden & Rockland Water Co. stock.....	7,875.00	5,000.00
American Bell Telephone Co. stock.....	606.00	
Old Colony R. R. Co. stock.....	2,430.00	5,000.00
Grand Ave. R. R. Co. 1st mort. bonds, gold.	1,920.00	
New Haven & Derby R. R. bonds.....	51,750.00	45,000.00
Total value and amount loaned.....	<u>\$396,845.25</u>	<u>\$281,661.01</u>

Loans on collateral securities.....	\$281,661.01
Premium notes, loans or liens on policies in force.....	496,249.84

SCHEDULE OF STOCKS AND BONDS.

*STOCKS.**Par Value. Market Value.*

Biddeford Nat'l Bank, Biddeford, Me.....	\$2,000.00	\$2,800.00
Canal Nat'l Bank, Portland, Me.....	20,000.00	31,800.00
Casco Nat'l Bank, Portland, Me.....	20,000.00	29,200.00
Cumberland Nat'l Bank, Portland, Me.....	4,120.00	5,253.00
First National Bank, Auburn, Me.....	2,000.00	2,800.00
First National Bank, Wiscasset, Me.....	1,000.00	1,300.00
First National Bank, Lewiston, Me.....	10,000.00	17,000.00
First National Bank, Bangor, Me.....	1,200.00	1,800.00
First National Bank, Biddeford, Me.....	3,800.00	6,460.00
First National Bank, Augusta, Me.....	5,000.00	6,750.00
First National Bank, Portland, Me.....	6,200.00	7,192.00
Georges National Bank, Thomaston, Me..	1,200.00	1,260.00
Importers & Traders' Nat'l Bank, N. Y. City	5,000.00	25,000.00
Knickerbocker Trust Co., New York.....	4,000.00	5,785.00
Lime Rock Nat'l Bank, Rockland, Me.....	8,750.00	9,375.00
Manufacturers' Nat'l Bank, Lewiston, Me.	5,000.00	6,600.00
Merchants' National Bank, Portland, Me..	1,425.00	2,356.00
National Shoe & Leather Bank, Auburn, Me	2,600.00	2,912.00
National Traders' Bank, Portland, Me....	2,100.00	2,898.00
National Loan & Trust Co., Kansas City...	20,000.00	20,600.00
North National Bank, Rockland, Me.....	10,000.00	15,000.00
Northern National Bank, Hallowell, Me...	10,000.00	14,000.00
Norway National Bank, Norway, Me.....	1,000.00	1,200.00
People's National Bank, Waterville, Me...	3,000.00	4,050.00
Richmond National Bank, Richmond, Me..	700.00	\$40.00
Rockland National Bank, Rockland, Me....	5,000.00	8,250.00
Sioux Falls Nat'l Bank, Sioux Falls, Dak..	2,000.00	2,300.00
Ticonic National Bank, Waterville, Me....	3,500.00	4,725.00
Veazie National Bank, Bangor, Me.....	5,000.00	6,250.00
Portland, Saco & Portsmouth R. R.....	14,200.00	17,608.00
Province of Ontario Annuities, 1888 to 1925		258,437.97

BONDS.

Par Value. Market Value.

United States.....	\$50,000.00	\$65,250.00
Atchison, Topeka & Santa Fe R. R.....	10,000.00	9,900.00
Chicago & West Michigan R. R.....	100,000.00	95,000.00
Canadian Pacific Ry. land grants.....	50,000.00	54,500.00
Chicago, Michigan & Lake Shore R. R....	25,000.00	25,625.00
Chicago, Kansas & Western R. R.....	100,000.00	89,000.00
Current River R. R.....	25,000.00	23,250.00
Dayton & Michigan R. R.....	25,000.00	26,500.00
Fremont, Elkhorn and Mo. Valley R. R....	25,000.00	30,750.00
Flint & Pere Marquette R. R.....	50,000.00	60,000.00
Grand Avenue Ry.....	50,000.00	48,000.00
Gulf, Colorado & Santa Fe R. R. 7s.....	25,000.00	29,750.00
Hannibal & St. Joseph R. R.....	50,000.00	60,250.00
Kansas & Missouri R. R.....	10,000.00	9,600.00
Kansas City, St. J. & Council Bluffs R. R..	27,000.00	32,535.00
Kansas City Belt Ry.	50,000.00	55,000.00
Kansas City Cable Ry.....	25,000.00	24,500.00
Kansas City, Ft. Scott & Memphis R. R...	50,000.00	55,500.00
Lincoln & Northwestern R. R.....	45,000.00	55,800.00
Maine Central R. R.....	9,000.00	10,125.00
Marquette, Houghton & Ontonagon R. R..	25,000.00	23,750.00
Milwaukee & St. Paul R. R.....	35,000.00	44,100.00
New York & New England R. R.....	50,000.00	57,000.00
New Mexico & Southern Pacific R. R.....	50,000.00	58,250.00
Northern Pacific R. R.....	25,000.00	26,625.00
Ohio & Mississippi R. R. Consolidated....	46,000.00	54,510.00
Oregon Ry. & Navigation Co.....	50,000.00	51,000.00
People's Street Ry. Co. of Luzerne Co., Pa.	25,000.00	25,750.00
Philadelphia & Reading R. R. Co.....	25,000.00	22,531.25
Portland & Ogdensburg R. R.	33,500.00	39,362.50
Pueblo & Arkansas Valley R. R....	25,000.00	28,625.00
Rome, Watertown & Ogdensburg R. R....	31,000.00	33,292.50
Southern Kansas R. R.....	85,000.00	76,550.00
Staten Island Rapid Transit R. R.....	10,000.00	11,400.00
St. Louis & San Francisco R. R.....	90,000.00	103,950.00
Wichita & Southwestern R. R.....	10,000.00	10,800.00
Wisconsin Valley R. R.....	4,000.00	4,900.00
Allen County, Indiana.....	15,000.00	15,000.00
Berlin, New Hampshire.....	7,000.00	6,895.00
Big Run & Georgesville, Franklin Co., O...	1,000.00	1,000.00
Bond County, Illinois.....	10,000.00	10,550.00
Brunswick, Me.....	2,500.00	2,500.00
Delaware City, Ohio.....	5,000.00	5,562.50
Elk County, Kansas.....	15,000.00	15,000.00
Highland County, Ohio.....	20,000.00	21,550.00
Louisville, Kentucky.....	25,000.00	24,500.00
Minneapolis, Minn.....	10,000.00	10,550.00
Minneapolis City Water-works.....	3,000.00	3,195.00
Miami County, Ohio.....	48,000.00	51,960.00
Omaha City, Nebraska.....	25,000.00	25,687.50
Peoria, Illinois.....	7,000.00	7,175.00
Portland, Maine.....	75,000.00	87,255.00
Pueblo City, Colorado.....	15,000.00	15,150.00

Par Value. Market Value.

Richmond, Virginia...	\$10,000.00	\$14,000.00
Sheldon, Vermont.....	4,000.00	4,000.00
Shelbyville, Indiana.....	1,000.00	1,000.00
Terre Haute, Indiana.....	10,000.00	10,825.00
Vigo County, Indiana.....	25,000.00	25,562.50
Wilmington, Delaware.....	5,000.00	5,275.00

Total values.....	<u>\$2,385,565.06</u>	<u>\$2,419,225.72</u>
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Cost value of stocks and bonds.....	\$2,385,565.06
Cash in company's office.....	2,605.54
Cash deposited in banks.....	175,209.53
Bills receivable.....	1,694.07
Agents' ledger balances.....	1,679.08
Cash in transit (since received).....	5,188.33

Total net or ledger assets, as per balance.....	<u>\$5,795,508.18</u>
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OTHER ASSETS.

Rents due and accrued on :

Mortgages.....	\$26,082.12
Stocks and bonds.....	25,504.96
Collateral loans.....	2,238.83
Premium notes, loans or liens.....	13,349.60
Rents due and accrued.....	169.08
Market value of stocks and bonds over cost.....	33,660.66

Premiums due and unreported on policies in force ...	\$51,749.61
Deferred premiums on policies in force.....	83,917.86

Total.....	<u>\$135,667.47</u>
Deduct average loading (20 per cent).....	27,133.49

Net amount of uncollected and deferred premiums....	108,533.98
Forborne premiums to be deducted in settlement of policy claims.....	519.50

Total assets as per books of the company.....	<u>\$6,005,566.91</u>
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ITEMS NOT ADMITTED.

Agent's balances.....	\$1,679.08
Bills receivable.....	1,694.07

Total items not admitted.....	<u>3,373.15</u>
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Total admitted assets.....	<u>\$6,002,193.76</u>
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LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....		\$5,657,136.00
Death losses due and unpaid.....	\$75.00	
Matured endowments due and unpaid	8,645.53	
Death losses and matured endowments not due.....	55,961.43	
Death losses and other policy claims resisted.....	2,500.00	
Total policy claims.....		67,181.96
Unpaid dividends of surplus due policy holders.....		4,577.92
Premiums paid in advance.....		1,652.48
Premium obligations in excess of net value of policies....		759.00
All other liabilities, viz. :		
Contingent reserve, \$408; unpaid bills, taxes, and all other liabilities (estimated), \$1,500.....		1,908.00
Liabilities as to policy holders.....		\$5,733,215.36
Surplus as regards policy holders		268,978.40
Gross liabilities.....		\$6,002,193.76

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887. ...	\$538,474.00	
Premium notes, loans or liens received during the year	28,137.35	
Total.....		\$566,611.35
Deductions during the year, as follows: Notes, loans or liens used in —		
Payment of losses and claims.....	\$35,298.00	
Purchase of surrendered policies and voided by lapse.	28,347.35	
Payment of dividends to policy holders.....	12,425.00	
Redeemed by maker in cash.....	1,668.00	
Transferred	1,428.00	
Total reduction.....		79,166.35
Balance of note assets December 31, 1888.....		\$487,445.00

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	Number.	Amount.
Whole life policies.....	5,201	\$9,485,031.00
Endowment policies.....	7,350	12,590,048.00
All other policies	1,927	3,520,554.00
Reversionary additions.....		198,562.49

NEW POLICIES ISSUED DURING THE YEAR.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	15	\$16,930.00
Endowment policies.....	2,396	4,869,667.00

OLD POLICIES REVIVED.

Whole life policies.....	4	11,000.00
Endowment policies.....	47	79,467.00
Reversionary additions.....		1,883.55

OLD POLICIES INCREASED.

Reversionary additions.....		5,682.69
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ADDITIONS BY DIVIDENDS.

Reversionary additions.....		35,476.56
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OLD POLICIES TRANSFERRED.

Endowment policies.....	2	3,500.00
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Total number and amount.....	16,942	\$30,817,802.29
Deduct policies ceased to be in force.....	2,214	4,422,201.83
Total in force December 31, 1888.....	14,728	\$26,395,600.46

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	4,977	\$8,913,688.00
Endowment policies in force.....	7,797	18,740,762.00
All other policies in force.....	1,954	3,516,854.00
Reversionary additions in force...		224,296.46
Total number and amount.....	14,728	\$26,395,600.46

TERMINATED AS FOLLOWS.

By death.....	204	\$435,915.20
maturity.....	140	143,545.14
expiry.....	243	497,500.00
surrender.....	45	172,092.98
lapse.....	889	1,634,180.02
change and decrease.....	2	76,568.49
Not taken.....	691	1,462,400.00
Total.....	2,214	\$4,422,201.83

BUSINESS IN NEW HAMPSHIRE.

	<i>Number.</i>	<i>Amount.</i>
Policies in force December 31, 1887.....	236	\$260,741.72
Policies issued during the year	60	89,912.60
Total.....	296	\$350,654.32
Deduct policies ceased to be in force.....	67	78,038.24
In force in New Hampshire Dec. 31, 1888...	229	\$272,616.08
Losses and claims unpaid December 31, 1887....	3	\$2,983.09
Losses incurred during 1887.....	22	14,101.08
Total	25	\$17,084.17
Losses and claims paid during 1888.....	22	\$16,445.23
Premiums collected or secured without deductions :		
Cash, \$7,597.77 ; notes or credits, \$306.00.....		\$7,903.77

AGENTS IN NEW HAMPSHIRE.

John F. Green,
Lyman Jackman,

Dover.
Concord.

Charles S. Sawyer, Dover.

UNITED STATES LIFE INSURANCE COMPANY.

[Incorporated February, 1850. Commenced business March, 1850.]

GEORGE H. BURFORD, *President.*

C. P. FRALEIGH, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$440,000.00.

INCOME.

New premiums without deductions.....	\$169,216.14
Renewal premiums.....	654,127.21
Total	\$823,343.35
Deduct amount paid for re-insurance	3,801.63
Total premium income.....	\$819,541.72

Cash received for interest on :

Mortgage loans.....	\$134,397.05
Bonds owned and dividends on stock.....	114,772.62
Premium notes, loans or liens.....	8,774.46
Other debts due the company.....	7,089.09
Rents for use of company's property.....	2,622.95
Total income.....	<u>\$1,087,197.89</u>
Net or ledger assets December 31, 1887.....	5,402,530.17
Total.....	<u>\$6,489,728.06</u>

DISBURSEMENTS.

Cash paid for losses and additions.....	\$411,965.95
Cash paid for matured endowments and additions..	81,705.51
Gross amount paid for losses and endowments....	<u>\$493,671.46</u>
Received for losses or claims on policies re-insured...	7,500.00
Net amount paid for losses and endowments....	\$486,171.46
Cash paid to annuitants	126.00
Cash paid for surrendered policies and additions.....	41,116.52
<i>(Total paid policy holders..... \$527,413.98.)</i>	
Cash paid stockholders for interest on capital (7 per cent)	30,800.00
Commissions to agents.....	120,239.00
Salaries and traveling expenses of agents.....	54,126.79
Medical examiners' fees....	16,436.26
Salaries of officers and office employees.....	43,060.87
Taxes and fees.....	17,896.15
Rent	20,456.31
Advertising	16,126.98
Profit and loss account.....	31,876.79
All other items, viz. :	
Printing and stationery, \$5,049.95; exchange and express, \$5,316.23; law expenses, \$4,844.59; directors' fees, \$1,900; miscellaneous, \$6,763.07; traveling expenses, \$1,580.70.....	25,454.54
Total disbursements during the year.....	<u>\$903,887.67</u>
Balance December 31, 1888.....	<u>\$5,585,840.39</u>

Invested in the following :

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$63,380.53
Loans on mortgages of real estate (first liens).....	3,120,150.00

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value.</i>	<i>Amount Loaned.</i>
Western Union Telegraph Co. stock.....	\$6,262.50	\$19,000.00
Missouri Pacific Ry. bonds.....	1,155.00	
American Telegraph & Cable Co. stock....	13,203.00	
N. Y., Lacka. & Western Ry. Co. stock.....	7,062.00	2,699.44
Missouri Pacific Ry. bonds.....	2,310.00	
American Telegraph & Cable Co. stock....	3,240.00	
American Telegraph & Cable Co. stock....	2,025.00	1,200.00
Western Union Telegraph Co. stock.....	8,350.00	5,312.45
American Telegraph & Cable Co. stock.....	5,670.00	
Importers & Traders' Nat'l Bank, N. Y., st'k	1,700.00	
Central R. R., N. J., bonds, gold.....	7,595.00	6,000.00
United N. J. R. R. & Canal Co. stock.....	3,552.00	1,500.00
Total value and amount loaned	<u>\$62,124.50</u>	<u>\$35,711.89</u>

Loans on collateral securities	\$35,711.89
Loans on company's policies as collateral	154,036.02

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>	<i>Cost Value.</i>	<i>Market Value.</i>
Iowa Central Ry., preferred.....	\$4,100.00	\$4,200.00
<i>BONDS.</i>		
United States.....	57,805.29	56,100.00
District of Columbia.....	131,384.40	148,800.00
Jersey City water loan.....	3,855.00	4,170.00
Jersey City.....	53,160.00	60,270.00
Jersey City water scrip.....	109,342.50	109,210.00
Jersey City Improvement.....	55,425.00	54,400.00
City of Newark, N. J.....	116,000.00	126,000.00
City of Newark, N. J., water.....	46,000.00	44,800.00
N. Y., Lackawanna & Western Ry.....	47,801.98	53,300.16
Oswego & Syracuse R. R.....	30,600.00	32,850.00
Chicago & Northwestern Ry.....	99,099.32	108,250.00
Chi., Mil. & St. Paul Ry., So. Minn. Div....	51,217.46	55,250.00
Chicago, Milwaukee & St. Paul, West. Div.	46,256.00	51,250.00
Missouri Pacific Ry., 1st mortgage.....	100,896.06	109,000.00
Missouri Pacific Ry., 3d mortgage.....	111,600.69	114,334.00
Central Iowa Ry., gold.....	71,550.00	71,174.70
St. Louis, Iron Mt. & Southern Ry., gold....	35,732.88	42,375.00
St. Louis, Iron Mt. & Southern Ry., 2d mort.	53,456.64	52,917.00
Chicago, Burlington & Quincy Ry., deb....	46,195.21	51,833.50
Missouri, Kansas & Texas, gold.....	20,278.33	13,875.00
N. Y. Central Ry., deb. certificates.....	69,428.75	69,456.89
N. Y. Central Ry., deb.....	124,167.50	130,404.96
Louisville & Nashville R. R.....	44,835.00	54,635.00
Kansas Pacific Ry., 1st mortgage.....	74,917.61	83,625.00
Chicago, St. Paul, Minn. & Omaha Ry.....	27,750.00	29,875.00
Albany & Susquehanna Ry.....	113,349.04	122,250.00
Burlington, Cedar Rapids & Northern Ry...	42,000.00	39,375.00
Chicago, Rock Island & Pacific Ry.....	104,750.00	104,750.00
Metropolitan Elevated Ry., gold.....	19,199.99	20,250.00

	<i>Cost Value.</i>	<i>Market Value.</i>
West Shore R. R., 1st mortgage.....	\$178,180.96	\$180,250.00
E. Tennessee, Virginia & Georgia Ry., gold	24,518.41	25,416.75
Total values.....	<u>\$2,114,854.02</u>	<u>\$2,224,647.96</u>
Cost value of stocks and bonds.....		\$2,114,854.02
Cash in company's office		602.50
Cash deposited in banks.....		54,225.55
Bills receivable.....		13,574.57
Agents' ledger balances.....		29,305.31
Total net or ledger assets, as per balance		<u>\$5,585,840.39</u>

OTHER ASSETS.

Interest due and accrued on :		
Mortgages		\$26,074.32
Stocks and bonds.....		32,460.84
Collateral loans.....		183.02
Premium notes, loans or liens.....		7,570.03
Bank balances and bills		218.47
Market value of real estate over cost... ..		47,369.47
Market value of stocks and bonds over cost.....		109,793.94
Premiums due and unreported on policies in force.....	\$91,111.28	
Deferred premiums on policies in force.....	94,154.65	
Total.....	<u>\$185,265.93</u>	
Deduct average loading.	18,526.59	
Net amount of uncollected and deferred premiums...		<u>166,739.34</u>
Total assets as per books of the company.....		<u>\$5,976,249.82</u>

ITEMS NOT ADMITTED.

Agents' balances.....	\$29,305.31	
Bills receivable.....	13,574.57	
Total items not admitted.....		<u>42,879.88</u>
Total admitted assets.....		<u>\$5,933,369.94</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$5,303,051.00	
Deduct net value of re-insured risks.....	41,872.00	
Net re-insurance reserve.....		<u>\$5,261,179.00</u>

Death losses and matured endowments not due.....	\$15,450.00	
Death losses and other policy claims resisted.....	6,000.00	
Total policy claims.....		\$21,450.00
Premiums paid in advance.....		1,716.43
All other liabilities, viz.:		
Accrued rents and office expenses, \$4,531.41; liability for lapsed policies, \$2,877.30.....		7,408.71
Liabilities as to policy holders.....		\$5,291,754.14
Paid-up capital.....	\$440,000.00	
Surplus over capital.....	201,615.80	
Surplus as regards policy holders.....		641,615.80
Gross liabilities.....		\$5,933,369.94

PREMIUM NOTE ACCOUNT.

Premium notes, loans or liens on hand Dec. 31, 1887.....	\$142,075.28	
Premium notes, loans or liens received during the year	49,601.66	
Total		\$191,676.94
Deductions during the year, as follows: Notes, loans or liens used in —		
Payment of losses and claims.....	\$11,676.29	
Purchase of surrendered policies and voided by lapse..	2,924.86	
Payment of dividends to policy holders.....	57.86	
Redeemed by maker in cash.....	22,981.91	
Total reduction		37,640.92
Balance of note assets December 31, 1888.....		\$154,036.02

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	9,666	\$19,591,229.00
Endowment policies.....	1,686	2,801,754.00
All other policies.....	383	1,078,846.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	1,644	3,458,566.00
Endowment policies.....	261	530,110.00
All other policies.....	653	2,347,000.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	25	\$67,500.00
Endowment policies.....	9	9,000.00
All other policies.....	26	61,000.00

OLD POLICIES INCREASED.

Whole life policies.....	22	64,000.00
Endowment policies.....	8	19,000 00
All other policies.....	5	19,000.00

Total number and amount.....	14,388	\$80,047,005.00
Deduct policies ceased to be in force.....	1,822	4,294,738.00

Total in force December 31, 1888.....	12,566	\$25,752,267.00
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	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	9,978	\$20,050,913.00
Endowment policies in force ...	1,711	2,906,018.00
All other policies in force.....	877	2,795,336.00
Total number and amount...	12,566	\$25,752,267.00

TERMINATED AS FOLLOWS.

By death.....	211	\$425,714.00
maturity.....	42	81,706.00
expiry.....	51	192,000.00
surrender.....	55	103,463.00
lapse.....	972	2,123,855.00
change and decrease.....	37	219,000.00
Not taken.....	454	1,149,000.00
Total.	1,822	\$4,294,738.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	93	\$80,090.00
Policies issued during the year.....	4	4,000.00
Total.....	97	\$84,090.00
Deduct policies ceased to be in force.....	15	19,290.00
In force in New Hampshire December 31, 1888	82	\$64,800.00

	<i>Number.</i>	<i>Amount.</i>
Losses incurred during 1888.....	3	\$5,790.00
Losses and claims paid during 1888.....	2	\$5,510.00
Premiums collected or secured without deductions.....		\$1,736.86

AGENTS IN NEW HAMPSHIRE.

None.

VERMONT LIFE INSURANCE COMPANY.

[Incorporated October 28, 1868. Commenced business January 1, 1869.]

WILLIAM H. HART, *President.*C. R. TURRILL, *Secretary.*

Principal office, Burlington, Vt.

CASH CAPITAL, \$100,000.00.

INCOME.

New premiums without deductions.....	\$16,183.22	
Renewal premiums.....	47,258.02	
Total	\$63,441.24	
Deduct amount paid for re-insurance.....	779.14	
Total premium income.....		\$62,662.10
Cash received for interest		17,254.52
Error to correct premium note account.....		457.34
Profit and loss.....		200.00
Balance from industrial business.....		673.52
Total income		\$81,247.48
Net or ledger assets December 31, 1887		300,733.09
Total.....		\$381,980.57

DISBURSEMENTS.

Gross amount paid for losses and additions.....	\$15,883.00
Cash paid for surrendered policies	8,899.89
Cash dividends applied in payment of premiums.....	2,220.13
<i>(Total paid policy holders.....\$27,003.02.)</i>	
Cash paid stockholders for interest and dividends.....	3,000.00
Commissions, salaries, and traveling expenses of agents..	19,862.75
Medical examiners' fees	2,583.60
Salaries of officers and office employees.....	6,000.00
Taxes and fees	1,738.81
Rent.....	1,577.59
Furniture and fixtures for offices	427.97
Advertising.....	524.62
Advanced to agents.....	1,175.45
All other items, viz.:	
Printing, \$984.96; postage and express, \$2,063.38; legal services, \$51.00.....	3,099.34
Total disbursements during the year.....	<u>\$66,993.15</u>
Balance December 31, 1887.....	<u>\$314,987.42</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cost value of real estate unincumbered.....	\$20,551.77
Loans on mortgages of real estate (first liens)	214,622.00

COLLATERAL SECURITIES FOR CASH LOANS.

	<i>Market Value. Amount Loaned.</i>	
National Car Co. stock.....	\$10,980.00	\$7,500.00
Paid-up life policy, assigned.....		500.00
Missouri Trust Co. bond.....	500.00	359.00
Vermont Inv't & Guarantee Co. stock.....	500.00	350.00
Sullivan Township, Minn., bonds.....	2,000.00	2,000.00
Bank Book No. 2024, Burlington Trust Co...	110.00	76.00
Sullivan Township, Minn., bonds.....	1,000.00	500.00
Total value and amount loaned	<u>\$15,090.00</u>	<u>\$11,285.00</u>
Loans on collateral securities		11,285.00
Loans on company's policies as collateral.....		7,910.65
Premium notes, loans or liens on policies in force.....		2,259.00

SCHEDULE OF STOCKS AND BONDS.

<i>STOCKS.</i>		<i>Cost Value.</i>	<i>Market Value.</i>
Merchants' National Bank.....	\$11,641.50	\$15,300.00	
Howard National Bank.....	17,000.00	20,400.00	
Burlington Gas-Light Co.....	3,800.00	4,105.00	
Burlington Improvement Co.....	20.00	20.00	
<i>BONDS.</i>			
City of Burlington.	3,241.00	3,392.00	
National Car Co.....	10,500.00	10,605.00	
School District No. 2, Vernon Co., Mo.....	500.00	500.00	
Total values.....	<u>\$46,702.50</u>	<u>\$54,322.00</u>	
Cost value of stocks and bonds.....			\$46,702.50
Cash in company's office.....			2,281.87
Cash deposited in banks.....			9,374.63
Total net or ledger assets, as per balance			<u>\$314,987.42</u>
<i>OTHER ASSETS.</i>			
Interest due and accrued on :			
Mortgages.....			\$6,571.93
Stocks and bonds			119.58
Collateral loans.....			18.59
Premium notes, loans or liens.....			240.63
Rents due and accrued			55.25
Market value of real estate over cost.			9,484.52
Market value of stocks and bonds over cost			7,619.50
Premiums due and unreported on policies in force	\$2,554.58		
Deferred premiums on policies in force.	19,282.37		
Total.....	<u>\$21,836.95</u>		
Deduct average loading (20 per cent).....	4,367.39		
Net amount of uncollected and deferred premiums....			17,469.56
Furniture and fixtures.....			3,246.69
Cash advanced agents.....			1,175.45
Total assets as per books of the company.....			<u>\$360,989.12</u>
<i>ITEMS NOT ADMITTED.</i>			
Furniture and fixtures.....	\$3,246.69		
Cash advanced agents	1,175.45		
Total items not admitted.....			<u>4,422.14</u>
Total admitted assets			<u>\$356,566.98</u>

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$273,630.00
Death losses and matured endowments not due.....	2,686.00
Premium obligations in excess of the net value of their policies.....	28.70
Liabilities as to policy holders.....	<u>\$276,344.70</u>
Paid-up capital	\$100,000.00
Impairment of capital.....	19,777.72
Surplus as regards policy holders.....	<u>80,222.28</u>
Gross liabilities.....	<u><u>\$356,566.98</u></u>

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies	599	\$613,172.00
Endowment policies.....	950	949,484.00
All other policies.....	22	28,000.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies.....	1,167	337,470.00
Endowment policies.....	731	514,200.00
All other policies.....	20	22,500.00

OLD POLICIES REVIVED.

Endowment policies.....	3	3,000.00
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ADDITIONS BY DIVIDENDS.

Whole life policies.....		393.00
Endowment policies.....		43.00
Temporary policies	4	3,500.00
Total number and amount.....	3,496	<u>\$2,471,762.00</u>
Deduct policies ceased to be in force.....	818	475,404.00
Total in force December 31, 1888.....	<u>2,678</u>	<u><u>\$1,996,358.00</u></u>

	<i>Number.</i>	<i>Amount.</i>
Whole life policies in force.....	1,378	\$814,681.00
Endowment policies in force.....	1,263	1,137,677.00
All other policies in force.....	37	44,000.00
Total number and amount.....	<u>2,678</u>	<u>\$1,996,358.00</u>

TERMINATED AS FOLLOWS.

	<i>Number.</i>	<i>Amount.</i>
By death.....	18	\$10,683.00
expiry	1	1,000.00
surrender.....	92	92,671.00
lapse	402	221,200.00
change and decrease.....		300.00
Not taken	303	146,550.00
Temporary policies	2	3,000.00
Total ..	<u>818</u>	<u>\$475,404.00</u>

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	71	\$69,985.00
Policies issued during the year.....	451	202,650.00
Total	522	\$272,635.00
Deduct policies ceased to be in force.....	149	71,483.00
In force in New Hampshire Dec. 31, 1888....	<u>373</u>	<u>\$201,152.00</u>
Losses incurred during 1888	2	\$433.00
Losses and claims paid during 1888.....	2	\$433.00
Premiums collected or secured without deductions.....		<u>\$1,934.00</u>

AGENTS IN NEW HAMPSHIRE.

AMOS P. WILSON, Manchester, General Agent.

George F. Butterfield, Dover.
O. H. Palmer, Nashua.
George F. Dodge, Concord.
S. R. Cairns, Manchester.
E. L. Gaouett, Manchester.
Barnard Elen, Manchester.

George R. Drew, No. Danville, Vt.
T. H. Palmer, Manchester.
L. L. Moore, Portsmouth.
O. H. C. Cabana, Manchester.
J. H. Danjou, Manchester.

WASHINGTON LIFE INSURANCE COMPANY.

[Incorporated January, 1860. Commenced business February 2, 1860.]

W. A. BREWER, JR., *President.*WILLIAM HAXTUN, *Secretary.*

Principal office, New York City.

CASH CAPITAL, \$125,000.00.

INCOME.

New premiums without deductions.....	\$505,819.36	
Renewal premiums.....	1,293,707.57	
Annuities	32,000.00	
Total premium income.....		\$1,831,526.93
Cash received for interest on:		
Mortgage loans.....	356,520.65	
Bonds owned and dividends on stock.....	37,750.00	
Other debts due the company	28,610.81	
Discount on claims paid in advance.....	6,879.56	
Rents for use of company's property	16,307.72	
Profits on bonds, stocks, or real estate sold.....	5,409.12	
Total income	\$2,283,004.79	
Net or ledger assets December 31, 1887.....	8,387,360.39	
Total.....		\$10,670,365.18

DISBURSEMENTS.

Cash paid for losses and additions.....	\$609,945.24	
Cash paid for matured and discounted endowments and additions.....	183,168.49	
Gross amount paid for losses and endowments.....		\$793,113.73
Cash paid to annuitants.....	4,965.69	
Cash paid for surrendered policies and additions.....	254,710.78	
Return premiums.....	1,036.15	
Cash dividends paid policy holders, applied in payment of premiums.....	165,758.00	
<i>(Total paid policy holders.....\$1,219,584.35.)</i>		
Cash paid stockholders for interest or dividends.....	8,571.50	
Commissions to agents.....	161,170.47	

Salaries and traveling expenses of agents.....	\$61,982.81
Medical examiners' fees.....	21,969.60
Salaries of officers and office employees.....	64,770.01
Taxes and fees.....	22,736.43
Rent.....	9,375.00
Commuting commissions.....	73,972.81
Advertising	28,582.79
Profit and loss account.....	2,404.70
All other items, viz.:	
Postage and express, \$7,411.45; printing and stationery, \$12,658.30; office expenses, \$47,213.16; interest, \$4,009.42.....	71,292.33
Total disbursements during the year.....	<u>\$1,746,412.80</u>
Balance December 31, 1888	<u>\$8,923,952.38</u>

Invested in the following:

ASSETS, AS PER LEDGER ACCOUNTS.

Cash value of real estate unincumbered.....	\$398,063.72
Loans on mortgages of real estate (first liens)	7,351,555.27
Loans on company's policies as collateral.....	226,225.61

SCHEDULE OF BONDS.

	<i>Cost Value.</i>	<i>Market Value.</i>
United States.....	\$145,000.00	\$158,125.00
New York City.....	408,604.79	545,000.00
Brooklyn water loan.....	106,098.63	141,000.00
Total values.....	<u>\$659,703.42</u>	<u>\$844,125.00</u>

Cost value of bonds owned.....	659,703.42
Cash in company's office.....	11,391.60
Cash deposited in banks.....	223,081.69
Agents' ledger balances.....	53,931.07
Total net or ledger assets, as per balance.....	<u>\$8,923,952.38</u>

OTHER ASSETS.

Interest due and accrued on:

Mortgages.....	\$80,961.01
Stocks and bonds.....	4,166.67
Collateral loans.....	5,724.68
Market value of stocks and bonds over cost.....	184,421.58

Premiums due and unreported on policies in force....	\$105,601.10	
Deferred premiums on policies in force.....	214,449.87	
Total.....	\$320,050.97	
Deduct average loading (20 per cent).....	64,010.19	
Net amount of uncollected and deferred premiums...		\$256,040.78
Total assets as per books of the company.....		\$9,455,267.10

ITEMS NOT ADMITTED.

Agents' balances.....	53,931.07
Total admitted assets.....	\$9,401,336.03

LIABILITIES.

Net present value of all outstanding policies, computed according to the Actuaries' Table of Mortality, with 4 per cent interest.....	\$8,934,331.00
Matured endowments due and unpaid.....	\$10,493.56
Death losses and matured endowments not due.....	5,379.30
Total policy claims.....	15,872.86
Unpaid dividends to stockholders.....	262.50
Premiums paid in advance.....	6,111.35
Salaries, rents, and office expenses.....	4,250.00
Liabilities as to policy holders.....	\$8,960,827.71
Paid-up capital.....	\$125,000.00
Surplus over capital.....	315,508.32
Surplus as regards policy holders.....	440,508.32
Gross liabilities.....	\$9,401,336.03

EXHIBIT OF POLICIES.

POLICIES AND ADDITIONS IN FORCE DECEMBER 31, 1887.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	9,501	\$21,041,942.00
Endowment policies.....	8,260	17,477,752.00
Reversionary additions.....		986,833.00

NEW POLICIES ISSUED DURING THE YEAR.

Whole life policies...	1,400	2,971,994.00
Endowment policies.....	2,697	5,783,823.00

OLD POLICIES REVIVED.

	<i>Number.</i>	<i>Amount.</i>
Whole life policies.....	95	\$211,475.00
Endowment policies.....	129	295,923.00
All other policies.....		9,965.00
Additions by dividends.....		278,431.00
Total number and amount.....	22,082	\$49,058,138.00
Deduct policies ceased to be in force.....	2,809	6,290,104.00
Total in force December 31, 1888.....	19,273	\$42,768,034.00
Whole life policies in force ...	9,915	\$21,651,421.00
Endowment policies in force..	9,358	20,114,576.00
All other policies in force.....		1,002,037.00
Total number and amount.	19,273	\$42,768,034.00

TERMINATED AS FOLLOWS.

By death.....	208	\$598,514.00
maturity ...	108	144,263.00
discount.....	24	47,944.00
surrender.....	434	1,119,030.00
lapse	1,230	2,454,455.00
Not taken.....	805	1,925,898.00
Total	2,809	\$6,290,104.00

BUSINESS IN NEW HAMPSHIRE.

Policies in force December 31, 1887.....	18	\$48,655.00
Policies issued during the year.....	4	6,000.00
Total	22	\$54,655.00
Deduct policies ceased to be in force.....	3	5,000.00
In force in New Hampshire Dec. 31, 1888 ..	19	\$49,655.00
Losses incurred during 1888	1	\$1,000.00
Losses and claims paid during 1888.....	1	\$1,000.00
Premiums collected or secured without deductions.....		\$1,780.42

AGENT IN NEW HAMPSHIRE.

J. B. BRACKETT, Leeds Junction, Me., General Agent.

INSURANCE STATISTICS

Containing condensed statements from the annual reports for the year 1888, of the entire business of 12 Stock, 10 Cash Mutual, 3 Assessment Mutual, 25 Town Mutual Fire Insurance Companies, and 3 Assessment Life Insurance Associations, all organized under the laws of the State of New Hampshire; also of 7 Fidelity and Casualty Companies of other States and countries, and 22 Life Insurance Companies of other States, licensed to transact business in New Hampshire. The tables also contain such ratios as may be of service in showing the standing of the companies on the 31st day of December, 1888.

Other tables give location, organization, and names of officers of companies doing business in New Hampshire, tax returns, receipts of the department, and tabulated statistics of fires which have occurred in the State during the year 1888, as returned by engineers and selectmen.

TABLE NO. 1.*

Showing Capital, Assets, Liabilities, and Surplus of New Hampshire Stock Fire Insurance Companies, for the year ending December 31, 1888, with Ratio of Surplus to Capital.

COMPANIES.	Capital.	Gross assets.	Liabilities excluding capital.	Surplus over capital.	Ratio of surplus to capital.	Surplus as to policy holders.
Amoskeag.....	\$50,000.00	\$90,565.86	\$32,261.36	\$8,304.50	16.60	\$58,304.50
Capital.....	50,000.00	95,645.76	34,487.30	11,158.46	22.32	61,158.46
Capital.....	50,000.00	91,811.14	28,455.74	13,355.40	26.71	63,355.40
Citizens'.....	10,000.00	23,163.69	10,834.00	2,329.69	23.30	12,329.69
Fire Underwriters' Association....	10,000.00	38,237.61	23,838.65	4,398.96	43.99	14,398.96
Granite State.....	200,000.00	402,903.97	180,942.58	21,961.39	10.98	221,961.39
Guaranty.....	20,000.00	39,227.17	18,584.12	643.05	3.22	20,643.05
Manchester City.....	50,000.00	57,096.55	1,909.01	5,187.54	10.37	55,187.54
Mascoma.....	25,000.00	45,574.43	16,081.01	4,493.42	17.97	29,493.42
New Hampshire.....	600,000.00	1,505,101.00	600,749.21	304,351.79	50.72	904,351.79
People's.....	250,000.00	565,175.76	208,111.48	47,064.28	18.80	297,064.28
Portsmouth.....	50,000.00	65,010.13	6,932.45	8,057.68	16.12	58,057.68
	\$1,365,000.00	\$3,019,513.07	\$1,223,206.91	\$431,306.16	31.59	\$1,796,306.16
New Hampshire, with 50 per cent reserve liabilities.....			565,168.68	339,932.32	56.66	939,932.32

* Liability for unearned premiums of all companies except the New Hampshire is computed upon the New Hampshire basis of 50 per cent of premiums on outstanding risks. Below the totals are given the liabilities and surplus of this company computed upon the same basis.

TABLE NO. 2.

Showing Ratio of Expenditures to Income, of Losses to Premiums, and of Expenses to Income and to Premiums of the Stock Fire Insurance Companies for the year 1888.

COMPANIES.	Income.	Expenditures.	Ratio of ex- penditures to income.	Net premiums received.	Losses paid.	Ratio of loss- es to pre- miums.	Expenses.	Ratio of ex- penses to income.	Ratio of ex- penses to premiums.
Amoskeag	\$41,074.20	\$25,839.91	62.91	\$35,497.76	\$15,862.93	44.69	\$9,976.98	24.29	28.11
Capital	50,403.45	34,033.04	67.52	45,723.22	18,793.71	41.10	12,587.69	24.97	27.53
Capital	38,813.02	25,931.46	66.81	32,777.80	15,522.59	47.38	8,408.87	21.66	25.65
Fire Underwriters'	31,750.78	23,289.18	73.35	30,406.54	14,387.97	47.35	8,401.21	26.46	27.63
Granite State.....	299,073.52	268,932.43	89.92	281,341.11	184,373.70	65.53	84,558.73	28.27	30.05
Guaranty	29,519.72	19,767.47	66.96	27,630.80	13,363.93	48.37	6,303.54	21.35	22.82
Manchester City..	5,867.66	862.41	14.61	2,497.99	.....	.....	588.25	10.03	23.55
Mascoma	25,696.88	12,249.60	47.66	23,493.49	5,537.85	23.57	6,711.75	26.12	28.69
New Hampshire..	746,840.83	616,438.01	82.54	682,019.43	353,125.04	51.78	223,312.97	29.90	32.74
People's	439,809.50	385,280.68	87.63	415,400.87	248,186.57	59.75	137,094.11	31.17	33.00
Portsmouth	14,593.25	3,943.33	27.02	11,103.47	1,549.59	13.95	2,393.74	16.42	21.55
	\$1,723,442.81	\$1,416,567.52	82.19	\$1,587,892.48	\$870,703.88	54.83	\$500,337.84	29.03	31.51

TABLE NO. 3.

Risks written, Premiums charged, Losses incurred, during the year 1888, by the Stock Fire Insurance Companies, with Ratio of Losses incurred to Risks written and to Premiums charged; also Amount at Risk December 31, 1888, and Premiums thereon.

COMPANIES.	Risks written.	Premiums charged.	Losses incurred.	Ratio of losses incurred to risks written.	Ratio of losses incurred to premiums charged.	Risks in force December 31, 1888.	Premiums thereon.	Ratio of premiums to risks in force.
Amoskeag	\$3,023,769.67	\$38,201.13	\$22,114.67	0.70	57.89	\$4,013,145.19	\$48,339.39	1.20
Capital	4,044,598.73	58,687.25	20,518.61	0.51	34.96	4,692,232.60	62,791.25	1.13
Capitol	3,036,305.00	38,001.93	14,641.80	0.48	38.53	4,421,837.00	54,135.65	1.22
Fire Underwriters	2,180,300.61	37,912.90	14,257.62	0.65	37.61	2,773,294.01	40,176.65	1.45
Granite State.	27,046,185.00	372,593.14	181,280.03	0.67	48.65	24,620,098.00	320,135.04	1.20
Guaranty.	1,837,201.43	32,871.93	10,723.00	0.58	32.62	2,069,764.27	33,964.61	1.66
Manchester City. .	336,750.00	2,921.85	.....	.....	.....	425,650.00	3,818.03	0.90
Mascona	1,758,669.77	26,793.98	5,927.30	0.34	22.12	2,027,348.80	29,277.42	1.44
New Hampshire. .	69,480,389.00	812,322.30	371,070.30	0.53	45.68	73,200,973.00	925,286.51	1.29
People's	36,935,697.00	510,576.92	254,085.82	0.69	49.76	32,983,120.00	448,524.28	1.36
Portsmouth	1,035,195.00	13,052.79	1,372.09	0.13	10.51	956,394.00	11,793.05	1.24
	\$150,715,011.21	\$1,943,936.12	\$895,991.24	0.58	46.09	\$152,183,856.87	\$1,978,241.88	1.30

TABLE NO. 4.

Ratio of Assets to Risks in force, and of Premiums charged to Risks written in 1888, by Stock Fire Insurance Companies.

COMPANIES.	Risks in force.	Net assets.	Ratio of net assets to risks.	Risks written in 1888.	Premiums charged thereon.	Ratio of pre- miums to risks writ- ten.
Amoskeag.....	\$4,013,145.19	\$82,474.20	2.06	\$3,023,709.67	\$38,201.13	1.26
Capital ...	4,692,232.60	92,554.08	1.97	4,044,598.73	58,687.25	1.45
Capitol.....	4,421,837.00	90,423.22	2.04	3,036,305.00	38,001.93	1.25
Fire Underwriters' Association...	2,773,294.01	34,487.29	1.24	2,180,300.61	37,912.90	1.74
Granite State.....	24,620,098.00	382,028.91	1.55	27,046,185.00	372,593.14	1.38
Guaranty.....	2,069,764.27	37,625.35	1.82	1,837,201.43	32,871.93	1.79
Manchester City.....	425,650.00	57,096.55	13.41	336,750.00	2,921.85	0.87
Mascoma.....	2,027,348.80	44,132.13	2.18	1,758,669.77	26,793.98	1.52
New Hampshire.....	73,200,973.00	1,402,575.57	1.91	69,480,389.00	812,322.30	1.17
People's	32,983,120.00	521,326.42	1.58	36,935,697.00	510,576.92	1.38
Portsmouth	956,394.00	63,954.20	0.67	1,035,195.00	13,052.79	1.26
	\$152,183,856.87	\$2,808,677.92	1.85	\$150,715,061.21	\$1,943,936.12	1.29

TABLE NO. 5.

Business of New Hampshire Stock Fire Insurance Companies within the State during the year 1888.

COMPANIES.	Risks written.	Premiums received.	Losses incurred.	Losses paid.	Ratio of losses to risks written.	Ratio of losses paid to risks written.	Ratio of losses incurred to premiums received.	Ratio of losses paid to premiums received.
Amoskeag	\$2,551,528.58	\$33,046.71	\$17,769.86	\$12,856.16	0.69	0.50	53.77	38.90
Capital	3,469,868.72	46,515.70	12,612.65	13,948.60	0.36	0.40	27.11	29.98
Capital	3,036,305.00	38,001.93	14,641.80	15,522.59	0.48	0.51	38.53	40.85
Fire Underwriters'	1,562,104.24	24,693.19	9,316.94	9,447.29	0.60	0.60	37.73	38.26
Granite State	12,782,444.00	120,787.82	44,213.58	42,906.11	0.35	0.34	36.60	35.52
Guaranty	1,238,719.88	20,052.28	5,888.11	8,478.15	0.47	0.68	29.36	42.28
Manchester City	336,750.00	2,921.85	.....	.....	.....	.....	.....	.....
Mascena	1,758,669.77	26,793.98	5,927.30	5,537.85	0.34	0.31	22.12	20.67
New Hampshire	14,337,362.00	154,961.70	52,176.47	52,099.39	0.36	0.36	33.68	33.62
People's	8,688,962.29	98,136.76	30,665.11	36,961.13	0.35	0.43	31.25	37.66
Portsmouth	1,035,195.00	13,052.79	1,372.09	1,549.59	0.13	0.15	10.53	11.87
	\$50,797,909.48	\$578,964.71	\$194,583.91	\$199,306.86	0.38	0.39	33.61	34.43

TABLE NO. 6.

Ratio of Premiums to Risks written on property in New Hampshire, and on property out of the State, insured by New Hampshire Stock Companies.

COMPANIES.	Risks written on property in New Hampshire in 1888.	Premiums thereon.	Ratio of premiums to risks written.	Risks written on property not in New Hampshire in 1888.	Premiums thereon.	Ratio of premiums to risks written.
Amoskeag.....	\$2,551,528.58	\$33,046.71	1.26	\$472,241.09	\$5,154.42	1.09
Capital.....	3,469,868.72	46,515.70	1.34	574,730.01	12,171.55	2.12
Capitol.....	3,036,305.00	38,001.93	1.25	.....	.....	.....
Fire Underwriters' Association.....	1,562,104.24	24,693.19	1.57	618,196.37	13,219.71	2.14
Granite State.....	12,782,444.00	120,787.82	0.94	14,263,741.00	251,805.32	1.76
Guaranty.....	1,238,719.88	20,052.28	1.61	598,481.55	12,819.65	2.14
Manchester City.....	336,750.00	2,921.85	0.87	.....	.....	.....
Mascoma.....	1,758,669.77	26,793.98	1.52	.....	.....	.....
New Hampshire.....	14,337,362.00	154,961.70	1.08	55,143,027.00	657,360.60	1.19
People's.....	8,688,962.29	98,136.76	1.13	28,246,734.71	412,440.16	1.45
Portsmouth.....	1,035,195.00	13,052.79	1.26	.....	.....	.....
	\$50,797,909.48	\$578,964.71	1.14	\$99,917,151.73	\$1,364,971.41	1.37

TABLE NO. 7.

Showing Guaranty Fund, Assets, Policy Stipulations, Liabilities, and Surplus of Mutual Fire Insurance Companies, taking a full cash Premium, for the year ending December 31, 1888, with Ratio of Surplus to Assets.

COMPANIES.	Guaranty fund.	Gross assets.	Policy stipulations.	Liabilities including re-insurance and guaranty fund.	Surplus over liabilities.	Ratio of surplus to assets.
Etna.....	.....	\$13,177.22	\$31,942.06	\$10,231.65	\$2,945.57	22.35
American Manufacturers'.....	.....	9,032.90	22,058.04	7,388.00	1,644.90	18.21
Cheshire County.....	.....	17,596.79	24,262.22	20,842.11	—*3,245.32	deficit.
Concord.....	.....	23,389.29	43,884.00	13,204.65	10,184.64	43.54
Exeter.....	.....	1,149.26	11,897.92	3,274.48	—*2,125.22	deficit.
Home Manufacturers'.....	.....	20,263.02	54,848.58	16,681.78	3,581.24	17.67
Indian Head.....	\$5,000.00	20,343.02	25,853.34	11,768.75	8,574.27	†55.18
Manufacturers & Merchants'.....	.....	53,123.75	83,297.28	32,029.10	21,094.65	39.71
Phenix.....	.....	12,667.51	12,075.82	11,852.78	814.73	6.43
State.....	3,000.00	16,415.57	30,924.38	14,182.39	2,233.18	†16.65
	\$8,000.00	\$187,158.33	\$341,043.64	\$141,455.69	\$45,702.64	†25.51

* Deficit. † Guaranty fund omitted from assets.

TABLE NO. 8.

Showing Ratio of Expenditures to Income, of Losses to Premiums, and of Expenses to Income and to Premiums of the Cash Mutual Fire Insurance Companies, for the year 1888.

COMPANIES.	Income.	Expenditures.	Ratio of expenditures to income.	Premiums received.	Losses paid.	Ratio of losses to premiums.	Expenses.	Ratio of expenses to income.	Ratio of expenses to premiums.
Zetha.....	\$16,420.47	\$11,994.01	73.04	\$15,907.10	\$8,203.46	51.38	\$3,753.32	22.85	23.51
American Manufacturers....	12,077.15	8,369.10	69.29	11,675.37	5,415.56	46.38	2,880.48	23.85	24.67
Cheshire County	17,402.65	12,495.28	71.79	16,991.65	8,244.04	48.52	4,251.24	24.43	25.02
Concord	17,191.97	7,637.29	44.42	16,449.29	3,991.94	24.26	3,645.35	21.20	22.16
Dover.....	20,336.02	13,465.89	66.22	19,994.77	8,860.03	44.31	4,605.86	22.64	23.04
Exeter	3,574.48	6,604.69	184.77	3,574.48	4,354.02	121.81	1,686.67	47.18	47.18
Home Manufacturers'	26,720.02	17,878.41	66.91	25,995.00	11,629.89	44.74	6,133.66	22.95	23.59
Indian Head.....	11,309.98	6,404.53	56.62	10,403.86	3,132.62	30.10	3,271.93	28.93	31.45
Manufacturers & Merchants'.	52,265.39	30,119.82	57.63	50,259.60	18,225.14	36.26	11,894.68	22.76	23.66
Phenix	22,287.04	12,688.05	56.93	22,087.85	7,425.79	35.88	4,762.26	21.37	21.56
State.....	10,856.43	11,023.74	101.54	10,058.07	8,239.68	81.92	2,447.27	22.54	24.33
	\$210,441.60	\$138,680.81	65.90	\$203,457.04	\$88,222.17	43.36	\$49,332.72	23.44	24.25

TABLE NO. 9.

Risks written, Cash Premiums charged, Losses incurred, during the year 1888, by the Cash Mutual Fire Insurance Companies, with Ratios of Losses incurred to Risks written and to Cash Premiums charged; also Amount at Risk December 31, 1888, and Cash Premiums thereon.

COMPANIES.	Risks written.	Cash premiums charged.	Losses incurred.	Ratio of losses incurred to losses written.	Ratio of losses incurred to cash premiums charged.	Risks in force Dec. 31, 1888.	Premiums thereon.	Ratio of premiums to risks in force.
Zetna.....	\$896,423.63	\$16,973.09	\$6,598.55	0.74	38.87	\$913,738.33	\$16,465.98	1.80
American Manf's....	634,486.21	12,633.91	4,588.07	0.72	36.32	604,869.76	11,798.22	1.95
Cheshire County.....	1,304,251.04	18,283.57	6,834.85	0.52	37.38	3,126,720.02	36,122.51	1.16
Concord.....	1,119,823.11	16,969.94	2,275.97	0.20	13.41	1,599,034.11	21,970.13	1.37
Exeter.....	278,874.00	4,030.27	3,378.82	1.21	83.83	395,407.17	5,948.96	1.50
Home Manf's.....	1,482,078.51	27,658.52	12,891.91	0.87	46.61	1,517,612.38	27,102.17	1.79
Indian Head.....	764,893.00	11,109.30	3,638.20	0.47	32.75	946,212.00	12,926.67	1.37
Manf's & Merchants'	2,948,161.15	53,852.20	19,694.34	0.67	36.57	3,043,834.88	52,635.86	1.73
Phenix.....	1,234,716.53	23,741.68	8,645.97	0.70	36.41	1,159,595.52	21,671.32	1.87
State.....	768,799.12	10,365.43	7,284.88	0.94	70.28	1,111,749.17	15,328.56	1.38
	\$11,432,506.30	\$195,617.91	\$75,831.56	0.66	38.76	\$14,418,773.34	\$221,970.38	1.54

TABLE NO. 10.

Ratio of Net Assets to Risks in force, and of Premiums charged to Risks written in 1888.

CASH MUTUAL COMPANIES.

COMPANIES.	Risks in force.	Net assets.	Ratio of net assets to risks.	Risks written in 1888.	Premiums charged thereon.	Ratio of premiums to risks.
Etna.....	\$913,738.33	\$11,178.56	1.22	\$896,423.63	\$16,973.09	1.89
American Manufacturers'	604,869.76	7,544.01	1.24	634,486.21	12,633.91	1.99
Cheshire County	3,126,720.02	14,824.56	0.47	1,304,251.04	18,283.57	1.40
Concord	1,599,034.11	21,169.71	1.32	1,119,823.11	16,969.94	1.52
Exeter.....	395,407.17	849.26	0.22	278,874.00	4,030.27	1.44
Home Manufacturers'.....	1,517,612.38	17,132.33	1.12	1,482,078.51	27,658.52	1.87
Indian Head.....	946,212.00	20,037.60	2.12	764,893.00	11,109.30	1.45
Manufacturers & Merchants'.....	3,043,834.88	47,412.58	1.56	2,948,161.15	53,852.20	1.83
Phenix.....	1,159,595.52	11,650.39	1.01	1,234,716.53	23,741.68	1.92
State	1,111,749.17	12,897.46	1.16	768,799.12	10,365.43	1.35
	\$14,418,773.34	\$164,696.46	1.14	\$11,432,506.30	\$195,617.91	1.71

TABLE NO. 11.

Business of New Hampshire Cash Mutual Fire Insurance Companies, within the State, during the year 1888.

COMPANIES.	Risks written.	Premiums received.	Losses incurred.	Losses paid.	Ratio of losses incurred to risks written.	Ratio of losses paid to risks written.	Ratio of losses incurred to premiums received.	Ratio of losses paid to premiums received.
Etna.....	\$782,461.13	\$14,799.30	\$6,598.55	\$8,203.46	0.84	1.05	44.59	55.43
American Manufacturers'	530,869.03	10,552.52	4,136.59	4,964.08	0.77	0.94	39.20	47.03
Cheshire County.....	1,248,459.04	17,400.68	6,834.85	8,244.04	0.55	0.66	39.28	47.37
Concord.....	1,089,723.11	16,455.94	2,201.57	3,917.54	0.20	0.36	13.37	23.80
Dover.....	500,986.50	8,582.24	4,684.74	3,994.74	0.94	0.80	54.58	46.55
Exeter.....	278,874.00	4,322.23	3,378.82	4,354.02	1.21	1.56	18.17	100.73
Home Manufacturers'....	1,330,201.58	24,662.30	12,403.62	11,450.62	0.93	0.86	50.29	46.43
Indian Head.....	764,893.33	11,109.30	3,638.20	3,669.52	0.48	0.48	32.74	33.03
Manf's & Merchants'.....	2,106,100.53	36,838.17	10,264.29	10,231.79	0.49	0.49	27.86	27.77
Phenix.....	636,520.16	10,921.97	3,835.61	3,058.31	0.60	0.48	35.12	28.00
State.....	749,199.12	10,004.43	7,284.88	8,239.68	0.97	1.09	72.81	82.36
	\$10,012,287.53	\$165,649.08	\$65,261.72	\$70,327.80	0.65	0.70	39.39	42.46

TABLE NO. 12.

Ratio of Premiums to Risks written on Property in New Hampshire, and on Property out of the State, insured by New Hampshire Cash Mutual Companies.

COMPANIES.	Risks written on property in New Hampshire in 1888.	Premiums thereon.	Ratio of premiums to risks with- ten.	Risks written on property not in New Hampshire in 1888.	Premiums thereon.	Ratio of pre- miums to risks with- ten.
Etna.....	\$782,461.13	\$14,799.30	1.89	\$113,962.50	\$2,173.79	1.91
American Manufacturers'.....	530,869.03	10,552.52	1.98	103,617.18	2,081.39	2.01
Cheshire County.....	1,248,459.04	17,400.68	1.40	55,792.00	882.89	1.58
Concord.....	1,089,723.11	16,455.94	1.51	30,100.00	514.00	1.71
Dover	500,986.50	8,582.24	1.71	598,481.00	not reported	.....
Exeter	278,874.00	4,322.23	1.55	.....	.....	.....
Home Manufacturers'	1,330,201.58	24,662.30	1.85	151,876.93	2,996.22	1.97
Indian Head.....	764,893.33	11,109.30	1.45	.....	.....	.....
Manufacturers & Merchants'.....	2,100,100.53	36,838.17	1.75	848,060.62	17,014.03	2.01
Phoenix.....	636,520.16	10,921.97	1.72	598,196.37	12,819.71	2.14
State.....	749,199.12	10,004.43	1.34	19,600.00	361.00	1.84
	\$10,012,287.53	\$165,649.08	1.65	*\$1,921,205.60	\$38,843.03	2.02

* Excluding Dover, its premiums being withheld. Total written out of New Hampshire, \$2,519,686.60.

TABLE NO. 13.

Statement of Assets, Contingent Premiums, Liabilities, Surplus, Gross Income, and Expenditures, with Ratio of Expenditures to Income, of the Grange Mutual and County Mutual Fire Insurance Companies, for the year 1888.

COMPANIES.	Cash assets.	Contingent premiums.	Liabilities (no reserve).	Surplus or deficit.	Income.*	Expenditures.	Ratio of expenditures to income.
Grange Mutual.....	\$1,193.02	\$11,304.00	.....	\$1,193.02	\$1,695.40	\$566.88	33.44
Merrimack County.....	372.17	20,686.77	.....	372.17	315.58	208.23	65.98
Rockingham Farmers'.....	1,485.52	221,411.49	\$6,263.10	— 4,777.58	6,145.46	6,427.01	104.58
	\$3,050.71	\$53,402.26	\$6,263.10	— \$3,212.39	\$8,156.44	\$7,202.12	88.30

TABLE NO. 14.

Showing Receipts and Expenditures of the Grange and County Mutual Fire Insurance Companies, as reported in their Annual Statements for 1888.

COMPANIES.	Premiums received.	Assessments made.	Assessments collected.	Losses incurred.	Losses paid.	Other receipts.	Other expenditures.
Grange Mutual.....	\$1,695.40	.....	.....	.....	.....	.....	\$566.88
Merrimack County.....	315.58	.....	.....	.....	.....	.....	208.23
Rockingham Farmers'.....	1,018.85	.....	\$1,352.24	\$3,383.83	\$3,033.83	\$3,774.37	3,393.18
	\$3,029.83	.....	\$1,352.24	\$3,383.83	\$3,033.83	\$3,774.37	\$4,168.29

TABLE NO. 15.

Statement of Number and Amount of Risks in force December 31, 1888, Risks written during the year, Premiums and Assessments received, Losses paid, and other Expenditures, with Cost per \$100 of Risk for Insurance, by the Grange Mutual and County Mutuals, for the year ending December 31, 1888.

COMPANIES.	Number of policies in force Dec. 31, 1888.	Risks in force Dec. 31, 1888.	Premiums and assessments received.	Losses and other expenditures.	Risks written during the year.	Cost per \$100 of insurance.
Grange Mutual.....	301	\$376,800.00	\$1,695.40	\$566.88	\$376,800.00	\$0.15
Merrimack County.....	358	379,584.00	315.58	208.23	118,675.00	0.06
Rockingham Farmers'	3,623	3,890,699.00	2,371.09	6,427.03	770,703.00	0.17
	4,282	\$4,647,083.00	\$4,382.07	\$7,202.14	\$1,266,178.00	\$0.16

TABLE NO. 16.

Showing Cash Assets, Contingent Resources, Liabilities, Income, and Expenditures of the Town Mutual Fire Insurance Companies, with Ratio of Expenditures to Income, for the year ending December 31, 1888.

COMPANIES.	Cash assets.	Premium notes.	Liabilities (no reserve).	Surplus or deficit.	Income.	Expenditures.	Ratio of expenditures to income.
Antrim	\$82.74	\$4,923.98	\$1.30	\$81.44	\$432.12	\$447.41	103.00
Barnstead	9.54	7,568.75	.....	9.54	1,433.61	1,464.07	102.00
Bedford	814.02	10,614.00	.....	814.02	95.00	6.00	6.00
Bow	38.67	4,435.50	.....	38.67	23.27	13.95	60.00
Candia	57.05	4,421.38	.....	57.05	19.98	8.46	42.00
Canterbury	27.42	8,353.53	121.00	—93.58	862.87	905.89	105.00
Dunbarton	4.54	2,808.00	.....	4.54	20.52	25.00	121.00
Farmers', of Franklin	308.14	2,111.10	.....	308.14	527.77	227.28	43.00
Hollis	64.07	14,507.30	.....	64.07	27.55	5.00	18.00
Loudon	177.84	4,363.45	49.20	128.64	1,778.00	1,773.30	99.00
Lyndeborough	103.78	6,913.50	.....	103.78	27.94	27.82	99.00
Milford	1,200.25	15,420.50	.....	1,200.25	195.89	13.20	7.00
New London	104.94*	.....	.....	104.94	45.72	10.25	22.00
Northwood	164.46	16,514.92	218.00	—53.54	676.27	620.26	90.00

Orford	53.56	6,173.50	.....	53.56	48.28	37.93	78.00
Piermont	19.86	8,882.57	.....	19.86	40.79	40.50	99.00
Sanbornton	928.42	7,303.00	14.50	913.92	149.29	150.87	101.00
Strafford	849.74	9,133.24	701.22	148.52	2,495.27	2,587.34	103.00
Sunapee	360.46	5,471.19	.....	360.46	135.67	51.00	98.00
Sutton	18.36	10,032.40	26.25	—7.89	1,051.59	1,065.72	101.00
Tilton and Northfield	604.26	6,292.95	.....	604.26	140.80	18.21	12.00
Unity	0.46	3,637.40	.....	0.46	372.38	403.65	108.00
Weare	817.46	28,577.50	635.00	182.46	1,763.16	1,761.08	100.00
Westmoreland	94.60	10,672.75	.....	94.60	60.16	41.27	68.00
Wilmot	24.29	3,644.50	.....	24.29	39.76	27.00	68.00
	\$6,928.93	\$202,976.91	\$1,766.47	\$5,152.46	\$12,463.66	\$11,732.46	94.00

* Liability of policy holders unlimited.

TABLE NO. 17.

Showing Receipts and Expenditures of Town Mutual Fire Insurance Companies as reported in their Annual Statements for 1888.

COMPANIES.	Premiums received.	Assessments made.	Assessments collected.	Losses incurred.	Losses paid.	Other receipts.	Other expenditures.
Antrim.....	\$28.71	\$392.91	\$392.91	\$400.00	\$400.00	\$10.50	\$47.41
Barnstead.....	53.12	1,359.96	1,339.48	1,354.68	1,354.68	41.01	109.39
Bedford.....	64.54	.....	.....	.....	.....	30.46	6.00
Bow.....	23.27	.....	.....	.....	.....	.....	13.95
Candia.....	19.98	.....	.....	.....	.....	.....	8.46
Canterbury.....	34.40	717.03	708.47	875.00	875.00	120.00	30.89
Dunbarton.....	20.52	.....	.....	.....	.....	.....	25.00
Farmers'.....	527.77	.....	.....	.....	.....	.....	227.28
Hollis.....	27.55	.....	.....	.....	.....	.....	5.00
Loudon.....	12.43	1,788.73	1,759.05	1,775.00	1,743.80	6.52	29.50
Lyndeborough.....	27.94	.....	.....	.....	.....	.....	27.82
Milford.....	145.75	.....	.....	.....	.....	50.14	13.20
New London.....	44.95	.....	.....	.....	.....	0.77	10.25
Northwood.....	84.62	550.28	546.81	19.10	394.10	44.84	226.16
Orford.....	48.28	.....	.....	.....	.....	.....	37.93

Piermont.....	30.79	.....	.....	.....	.....	.....	10.00	40.50
Sanbornton.....	115.05	.....	.....	.....	3.00	3.00	34.24	147.87
Stratford	153.27	3,231.44	2,342.00	3,292.00	2,390.78	.....	.....	196.56
Sunapee.....	125.67	.....	.....	.....	.....	.....	10.00	51.00
Sutton	37.33	1,003.21	988.01	1,000.00	1,000.00	.....	26.25	65.72
Tilton and Northfield.....	118.60	.....	.....	.....	.....	.....	22.18	18.21
Unity.....	3.79	395.59	368.59	1,142.00	342.00	.....	.....	61.65
Weare.....	133.28	1,623.47	915.00	1,500.00	915.00	.....	714.88	846.08
Westmoreland	60.16	.....	.....	5.00	5.00	.....	.....	36.27
Wilmot.....	38.36	.....	.....	.....	.....	.....	1.40	27.00
	\$1,980.13	\$11,062.62	\$9,360.32	\$11,365.78	\$9,423.36	\$1,122.19		\$2,309.10

TABLE NO. 18.

Statement of Number and Amount of Risks in force December 31, 1888, Risks written during the year, Premiums and Assessments received, Losses paid, and other Expenditures, with Cost per \$100 of Risk for Insurance, by the Town Mutual Fire Insurance Companies, for the year ending December 31, 1888.

COMPANIES.	No. of policies in force Dec. 31, 1888.	Risks in force Dec. 31, 1888.	Risks written during the year.	Premiums and assessments received.	Losses and other expenditures.	Cost per \$100 of Risk.
Antrim.....	89	\$91,150.00	\$15,950.00	\$421.62	\$447.41	\$0.49
Barnstead.....	163	134,131.00	23,710.00	1,392.60	1,464.07	1.09
Bedford.....	73	91,050.00	21,500.00	64.54	6.00	0.01
Bow	111	88,710.00	6,685.00	23.27	13.95	0.02
Candia	106	69,760.00	15,885.00	19.98	8.46	0.01
Canterbury.....	138	144,705.00	20,475.00	742.87	905.89	0.63
Dunbarton	60	52,200.00	12,850.00	20.52	25.00	0.05
Farmers'	132	105,555.00	105,555.00	525.77	227.28	0.22
Hollis.....	229	232,820.00	44,180.00	27.55	5.00	0.01
Loudon	80	88,780.00	13,795.00	1,771.48	1,773.30	2.00
Lyndeborough.....	127	115,225.00	15,525.00	27.94	27.82	0.02
Milford	137	155,525.00	28,300.00	145.75	13.20	0.01
New London Farmers'	81	65,519.00	17,984.00	44.95	10.25	0.02

Northwood.....	317	302,587.00	52,613.00	631.43	620.26	0.21
Orford	105	119,035.00	31,725.00	48.28	37.93	0.03
Piermont.....	166	138,505.00	15,810.00	40.79	40.50	0.03
Sanborn ton.....	128	146,075.00	23,010.00	115.05	150.87	0.10
Strafford.....	190	160,861.00	115,490.00	2,495.27	2,587.34	1.61
Sunapee.....	120	97,395.00	37,050.00	125.67	51.00	0.05
Sutton	167	107,564.00	19,685.00	1,025.34	1,065.72	0.99
Tilton and Northfield.....	102	125,859.00	23,724.00	118.62	18.21	0.02
Unity.....	82	65,685.00	6,810.00	372.38	403.65	0.61
Weare.....	454	381,245.00	84,475.00	1,048.28	1,761.08	0.46
Westmoreland.....	98	99,565.00	13,800.00	60.16	41.27	0.04
Wilmot	92	60,300.00	15,200.00	38.36	27.00	0.05
	3,527	\$3,239,809.00	\$781,816.00	\$11,348.47	\$11,732.46	\$0.36

TABLE NO. 19.

General Statement of the Capital, Assets, Liabilities, Surplus, and Income of the Fidelity and Casualty Companies, during the year ending December 31, 1888.

COMPANIES.	Capital.	Assets.	Liabilities except capital.	Surplus.	Premiums received.	Income.
Accident Insurance Co. of North America.....	\$100,000.00	\$116,794.18	\$17,943.11	*-\$1,148.93	\$12,478.13	\$20,210.57
American Steam Boiler Insurance Co.....	500,000.00	1,367,813.20	493,932.36	373,880.84	405,674.89	457,603.37
American Surety Co.....	1,000,000.00	1,335,977.90	201,668.11	134,309.79	341,536.63	375,604.50
Employers' Liability Assurance Corporation.....	100,000.00	334,219.10	210,026.60	24,192.50	357,425.52	365,412.07
Fidelity & Casualty Insurance Co.....	250,000.00	759,484.01	472,400.82	37,023.19	673,379.12	694,432.28
Guaranty Co. of North America.....	304,600.00	616,184.73	146,058.32	165,526.41	212,544.07	242,383.50
Hartford Steam Boiler Inspection and Insurance Co....	500,000.00	1,275,114.02	688,309.06	86,804.36	614,367.00	672,147.93
	\$2,754,600.00	\$5,805,587.14	\$2,230,398.98	\$820,588.16	\$2,616,805.36	\$2,827,794.82

* Deficit.

TABLE NO. 20.

General Statement of the Losses incurred and paid, Dividends, Expenses, Expenditures, and Risks in force, of the Fidelity and Casualty Companies during the year ending December 31, 1888.

COMPANIES.	Losses incurred.	Losses paid.	Dividends.	Expenses.	Expenditures.	Risks in force.
Accident Insurance Co. of North America.....	\$18,507.12	\$26,432.98	.....	\$60,375.99	\$86,808.97	\$3,415,500.00
American Steam Boiler Insurance Co.....	33,212.91	33,212.91	\$60,000.00	286,886.04	330,098.95	63,183,582.00
American Surety Co.....	102,773.74	78,543.77	60,000.00	149,123.72	287,667.49	54,680,363.00
Employers' Liability Assurance Corporation.....	104,802.68	104,802.68	.....	151,299.54	256,171.19	46,757,530.00
Fidelity and Casualty Insurance Co.....	231,249.73	231,249.73	10,000.00	338,082.93	604,496.87	91,630,543.18
Guaranty Co. of North America.....	72,667.83	69,771.99	18,073.09	101,308.82	189,243.90	30,737,758.00
Hartford Steam Boiler Inspection and Insurance Co...	41,483.14	40,811.25	50,000.00	437,611.78	528,423.63	91,102,143.00
	\$607,697.15	\$584,825.31	\$198,073.09	\$1,544,778.82	\$2,332,910.40	\$381,507,419.18

TABLE NO. 21.

Summary of the Business of Fidelity and Casualty Companies transacted within the State of New Hampshire during the year 1888.

COMPANIES.	Risks written.	Premiums received.	Losses paid.	Losses incurred.
Accident Insurance Co. of North America.....	\$156,500.00	\$722.16	\$211.16	\$211.16
American Steam Boiler Insurance Co.....	370,500.00	3,588.58	.....	.....
American Surety Co. ....	.....	634.88	.....	.....
Employers' Liability Assurance Corporation.....	1,419,350.00	10,073.85	5,272.13	5,272.13
Fidelity and Casualty Insurance Co..	364,952.40	2,144.65	617.12	617.12
Guaranty Co. of North America.....	74,700.00	536.50	.....	.....
Hartford Steam Boiler Inspection and Insurance Co....	1,041,000.00	10,784.76	.....	.....
Total.....	\$3,427,002.40	\$28,485.38	\$6,100.41	\$6,100.41

TABLE NO. 22.

Income, Expenditures, Claims in course of Settlement of the New Hampshire Assessment Life Insurance Associations, with Ratios of Losses and of Expenses to Income, for the year ending December 31, 1888.

ASSOCIATIONS.	INCOME.			Claims in course of settlement.	EXPENDITURES.			Ratio of losses to income.	Ratio of expenses to income.
	From assessment.	All other receipts.	Total income.		For losses and claims.	Expenses of management.	Total disbursement.		
Granite State Mutual Aid Ass'n ..	\$110,157.61	\$24,996.87	\$135,154.48	\$24,000.00	\$98,038.36	\$24,093.52	\$124,153.88	72.54	17.82
Provident Mutual Relief Ass'n.....	50,708.54	7,124.37	57,550.76	12,000.00	50,278.00	6,928.38	57,386.38	87.36	12.04
Pemigewasset Mutual Relief Ass'n	13,770.13	17,328.71	31,098.84	18,000.00	13,789.13	15,517.85	31,039.98	44.34	49.90
	\$174,696.28	\$49,449.95	\$223,804.08	\$54,000.00	\$162,105.49	\$46,539.75	\$212,580.24	72.43	20.79

TABLE NO. 23.

Detailed Statement of Assets, Emergency Fund, and Liabilities of New Hampshire Assessment Life Insurance Associations for the year ending December 31, 1888.

ASSOCIATIONS.	ASSETS.			Emergency fund.	LIABILITIES.		
	Cash or invested.	Contingent (mortuary).	Total assets Dec. 31, 1888.		Admitted.	Contingent (mortuary).	Total liabilities Dec. 31, 1888.
Granite State Mutual Aid Association.....	\$22,183.30	\$26,000.00	\$48,783.30	\$12,298.95	.....	\$24,000.00	\$24,000.00
Provident Mutual Relief Association.....	4,908.49	10,439.10	15,347.59	.....	.....	12,000.00	12,000.00
Pemigewasset Mutual Relief Association....	130.91	18,000.00	18,130.91	.....	.....	18,000.00	18,000.00
	\$27,222.70	\$55,039.10	\$82,261.80	\$12,298.95	.....	\$54,000.00	\$54,000.00

TABLE NO. 24.

Certificate Record, Number of Deaths, and Losses incurred by the New Hampshire Assessment Life Insurance Associations for the year ending December 31, 1888.

ASSOCIATIONS.	CERTIFICATES.						Amount of losses incurred in 1888.	Losses incurred per \$1,000 of insured amount in 1888.	Age of association in years.
	No. in force Dec. 31, 1887.	Amount of insurance.	No. issued in 1888.	No. terminated in 1888.	No. in force Dec. 31, 1888.	Amount of insurance thereon.			
Granite State Mutual Aid Association.....	3,624	\$10,686,000.00	1,011	471	4,164	\$12,074,000.00	\$33,301.36	\$8.19	6
Provident Mutual Relief Association.....	3,180	6,174,000.00	268	72	3,376	6,521,000.00	58,000.00	9.12	12
Penigewasset Mutual Relief Association.	736	1,810,500.00	1,733	94	2,375	6,308,000.00	13,770.13	3.39	3
	7,540	\$18,670,500.00	3,012	637	9,915	\$24,903,000.00	\$165,071.49	\$7.57	7

TABLE NO. 25.

General Summary of the Capital, Income, Expenditures, Assets, Liabilities, Surplus, with Ratio of Expenditures to Income, of the Life Insurance Companies transacting business in New Hampshire during the year 1888.

COMPANIES.	Location.	Capital.	Income.	Expenditures.	Ratio.
Ætna.....	Hartford, Conn.....	\$1,250,000.00	\$5,133,729.33	\$1,044,052.46	78.77
Connecticut General	Hartford, Conn.....	150,000.00	314,592.07	198,573.45	63.12
Connecticut Mutual.....	Hartford, Conn.....	.....	7,423,475.96	6,699,144.64	90.24
Equitable.....	New York City.....	.....	26,958,977.59	16,829,906.13	62.42
Manhattan.....	New York City.....	100,000.00	1,973,964.28	1,932,670.90	97.81
Massachusetts Mutual.....	Springfield, Mass.....	.....	2,102,575.12	1,550,193.62	73.73
Metropolitan.....	New York City.....	500,000.00	7,086,218.65	5,600,444.65	79.03
Mutual Benefit.....	Newark, N. J.....	.....	7,371,232.18	5,883,506.95	79.82
Mutual Life.....	New York City.....	.....	26,215,932.52	19,699,657.53	75.14
National.....	Montpelier, Vt.....	.....	1,541,537.38	942,050.75	61.11
New England Mutual.....	Boston, Mass.....	.....	3,486,915.79	2,821,108.75	80.91
New York Life.....	New York City.....	.....	24,871,173.96	15,389,610.47	61.88
Northwestern.....	Milwaukee, Wis.....	.....	8,000,633.45	4,279,089.79	53.48
Penn Mutual.....	Philadelphia, Penn.....	.....	3,353,755.43	2,229,388.22	66.47
Phoenix Mutual.....	Hartford, Conn.....	100,000.00	1,300,320.10	1,192,632.50	91.72
Provident Savings.....	New York City.....	100,000.00	1,163,625.21	1,011,921.14	86.96
State Mutual.....	Worcester, Mass.....	.....	1,257,684.22	836,097.60	66.42
Travelers' Life & Accident.....	Hartford, Conn.....	600,000.00	3,987,399.99	3,159,820.35	79.24
Union Mutual.....	Portland, Maine.....	.....	963,519.77	991,639.04	102.92
United States.....	New York City.....	440,000.00	1,087,197.89	903,887.67	83.14
Vermont Life.....	Burlington, Vt.....	100,000.00	81,247.48	66,993.15	82.45
Washington.....	New York City.....	125,000.00	2,283,004.79	1,746,412.80	76.49
		\$3,465,000.00	\$137,958,733.16	\$98,008,802.56	71.04

TABLE NO. 25. — *Continued.*

COMPANIES.	Total assets.	Liabilities exclud- ing capital.	Surplus as re- gards policy holders in 1888.	Surplus as re- gards policy holders in 1887.	Increase or de- crease.
Zéna.....	\$33,743,009.82	\$27,954,455.83	\$5,788,553.99	\$5,649,498.19	\$139,055.80
Connecticut General.....	1,820,994.72	1,353,931.36	467,063.36	417,721.74	49,341.62
Connecticut Mutual.....	57,447,440.95	51,888,781.61	5,558,659.34	5,486,731.16	71,928.18
Equitable.....	93,312,329.07	74,243,926.81	19,068,402.26	16,689,328.20	2,379,074.06
Manhattan.....	11,543,048.80	10,236,343.94	1,306,704.86	1,602,030.88	— 295,326.02
Massachusetts Mutual.....	9,565,322.65	8,813,347.04	752,175.61	693,624.23	58,551.38
Metropolitan.....	6,287,781.35	5,360,758.49	927,022.86	863,392.10	63,630.76
Mutual Benefit.....	43,514,460.54	40,158,781.33	3,355,679.21	3,276,596.76	79,082.45
Mutual Life.....	125,494,718.73	117,607,078.93	7,887,639.80	6,326,615.67	1,561,024.13
National.....	5,167,523.13	4,373,253.83	794,269.30	669,574.59	124,694.71
New England Mutual.....	19,709,091.29	17,192,726.15	2,516,365.14	2,656,140.41	— 139,775.30
New York Life.....	92,685,062.26	79,135,963.17	13,549,099.09	11,846,793.06	1,702,306.03
Northwestern.....	32,650,860.37	27,987,373.62	4,663,486.75	4,020,225.82	643,260.93
Penn. Mutual.....	13,762,740.22	11,933,706.80	1,829,033.42	1,871,441.85	— 42,408.43
Phoenix Mutual.....	10,573,597.30	9,255,060.26	1,318,537.04	1,208,118.39	110,418.65
Provident Savings.....	569,165.33	211,682.00	357,183.33	177,197.00	180,286.33
State Mutual.....	5,066,985.24	4,268,412.00	798,573.24	791,176.66	7,396.58
Travelers' Life & Accident.....	10,382,781.92	8,342,650.51	2,040,131.41	1,907,765.36	132,366.05
Union Mutual.....	6,002,193.76	5,733,215.36	268,978.40	295,876.73	— 26,898.33
United States.....	5,933,369.94	5,291,754.14	641,615.80	594,778.21	46,837.59
Vermont Life.....	356,566.98	276,344.70	80,222.28	80,919.02	686.74
Washington.....	9,401,336.03	8,960,827.71	440,508.32	502,873.64	— 62,365.32
	\$594,990,580.40	\$520,220,375.59	\$74,410,204.81	\$67,628,419.70	\$6,581,795.11

TABLE NO. 26.

Comprising a Detailed Classification of the Gross Assets of Life Insurance Companies transacting business in New Hampshire for the year ending December 31, 1888.

COMPANIES.	Real estate.	Loans on mort- gages.	Loans on collaterals.	Premium notes.	Cash in office and bank.
Ætna.....	\$582,504.70	\$15,723,590.77	\$948,957.93	\$1,339,788.47	\$5,737,601.66
Connecticut General.....	157,545.42	1,172,990.80	34,172.52	70,756.23	29,010.41
Connecticut Mutual.....	9,045,849.86	31,630,448.60	391,183.00	1,953,501.18	2,568,772.64
Equitable.....	22,695,389.21	25,660,786.64	825,000.00	.....	10,715,599.31
Manhattan.....	322,358.83	3,622,072.13	4,100,562.50	.....	194,409.38
Massachusetts Mutual.....	555,884.33	2,754,265.81	863,271.04	524,271.04	200,489.31
Metropolitan.....	373,325.10	3,554,900.00	8,000.00	124,939.37	45,730.54
Mutual Benefit.....	1,285,426.05	20,553,760.35	4,333,643.05	4,254,443.28	699,877.76
Mutual Life.....	11,753,125.34	49,617,874.02	10,033,000.00	.....	2,813,277.60
National Life.....	180,470.67	2,253,991.76	243,241.48	45,427.47	258,591.55
New England Mutual.....	1,757,428.64	2,931,660.00	1,022,212.97	956,944.13	692,562.91
New York.....	9,308,152.08	16,966,932.50	1,676,250.00	378,874.10	3,695,836.94
Northwestern Mutual.....	1,243,468.41	27,352,727.03	.....	789,801.70	1,066,152.42
Penn Mutual.....	690,494.07	4,044,729.74	1,243,837.00	572,448.99	467,539.96
Phoenix Mutual.....	1,315,465.18	6,456,077.39	.....	968,659.36	628,372.16
Provident Savings.....	.....	127,400.00	48,500.00	.....	79,999.73
State Mutual.....	86,000.00	813,484.00	364,140.00	114,555.11	109,986.13
Travelers' Life & Accident.....	938,375.97	3,425,476.50	403,670.00	.....	770,919.27
Union Mutual.....	1,288,976.92	1,156,678.80	281,661.01	496,249.84	183,003.40
United States.....	110,750.00	3,120,150.00	189,747.91	.....	54,823.05
Vermont.....	30,036.29	214,622.00	19,195.65	2,259.00	11,656.50
Washington.....	398,063.72	7,351,555.27	226,225.61	.....	234,473.29
	\$64,125,110.79	\$230,506,174.11	\$27,257,471.67	\$12,592,919.27	\$31,258,630.92

TABLE NO. 26. — *Continued.*

COMPANIES.	United States bonds.	Other stocks and bonds.	Deferred and uncollected premiums.	All other assets.	Gross assets.
Etna.....	\$1,103,900.00	\$9,561,898.13	\$213,161.22	\$531,606.94	\$33,743,009.82
Connecticut General.....	.....	289,225.50	35,640.29	31,653.55	1,820,994.72
Connecticut Mutual.....	125,000.00	10,613,477.14	105,431.44	1,013,757.09	57,447,440.95
Equitable.....	648,588.00	30,062,411.00	1,660,138.40	868,004.51	93,312,329.07
Manhattan.....	635,000.00	1,408,199.00	238,021.96	116,041.74	11,543,048.80
Massachusetts Mutual.....	108,500.00	4,093,713.00	293,994.65	171,034.36	9,565,522.65
Metropolitan.....	358,637.50	1,718,381.25	40,843.88	63,923.71	6,287,781.35
Mutual Benefit.....	108,500.00	11,223,488.83	361,495.31	693,825.91	43,514,460.54
Mutual Life.....	2,870,500.00	48,616,704.14	1,738,297.05	922,440.58	125,494,718.73
National.....	165,385.00	1,821,481.50	106,692.56	86,241.13	5,167,523.13
New England Mutual.....	206,490.00	11,810,193.25	139,024.50	208,022.05	19,721,538.45
New York.....	942,912.50	57,279,839.44	1,984,639.46	451,605.24	92,685,062.26
Northwestern Mutual.....	140,293.75	975,831.39	633,003.10	449,582.57	32,650,860.37
Penn Mutual.....	64,000.00	6,223,872.00	330,277.95	89,049.46	13,762,740.22
Phoenix Mutual.....	144,410.00	860,423.20	41,268.46	158,919.55	10,573,597.30
Provident Savings.....	108,500.00	153,862.50	48,120.36	3,782.74	569,165.33
State Mutual.....	237,500.00	3,066,595.00	.....	274,775.00	5,066,985.24
Travelers' Life & Accident.....	162,562.50	4,376,043.80	233,373.42	72,360.46	10,382,781.92
Union Mutual.....	65,250.00	2,353,975.72	108,533.98	67,864.09	6,002,193.76
United States.....	56,100.00	2,168,547.96	166,739.34	66,506.68	5,933,369.94
Vermont.....	.....	54,322.00	17,469.56	7,005.98	356,566.98
Washington.....	158,125.00	726,100.00	256,040.78	90,852.36	9,401,336.03
	\$8,410,154.25	\$209,458,587.75	\$8,752,227.67	\$6,437,955.70	\$505,006,027.56

TABLE NO. 27.

Detailed Statement of the Income of the Life Insurance Companies doing business in New Hampshire, for the year 1888.

COMPANIES.	Premiums.	Interest and dividends.	Rents.	All other sources.	Total income.	Excess of income over expenditures.
Ætna	\$3,404,264.73	\$1,721,312.86	\$8,151.74	.....	\$5,133,729.33	\$1,089,676.87
Connecticut General	219,509.06	904,414.11	4,198.25	\$470.65	314,592.07	116,018.62
Connecticut Mutual	4,436,285.32	2,609,080.04	378,110.60	.....	7,423,475.96	724,331.32
Equitable	22,047,813.35	4,181,779.81	729,384.43	.....	26,958,977.59	10,129,071.46
Manhattan	1,454,829.77	509,138.63	9,995.88	.....	1,973,964.28	41,293.38
Massachusetts Mutual	1,639,369.87	446,107.84	17,097.41	.....	2,102,575.12	552,381.50
Metropolitan	6,810,109.91	2,455,329.13	22,382.43	8,397.18	7,086,218.65	1,485,774.00
Mutual Benefit	5,083,388.88	2,260,442.84	27,420.46	.....	7,371,252.18	1,487,745.23
Mutual Life	19,444,307.75	5,676,938.65	384,580.40	710,105.72	26,215,932.52	6,516,274.99
National	1,281,173.37	252,606.39	7,701.27	56.35	1,541,537.38	599,486.63
New England Mutual	2,472,809.95	882,435.18	86,242.42	45,428.24	3,486,915.79	665,807.04
New York	20,560,609.53	4,144,059.41	92,772.25	73,732.77	24,871,173.96	9,481,563.49
Northwestern Mutual	6,229,424.10	1,691,628.44	79,580.91	.....	8,000,633.45	3,721,543.66
Penn Mutual	2,636,291.09	604,136.87	39,786.57	22,540.90	3,353,755.43	1,124,367.21
Phoenix Mutual	678,247.54	576,612.09	45,460.47	.....	1,300,320.10	107,687.60
Provident Savings	1,145,152.65	18,472.56	.....	.....	1,163,625.21	151,704.07
State Mutual	1,033,523.31	233,472.36	908.70	.....	1,257,684.22	421,586.62
Travelers' Life & Accident	3,401,466.35	528,155.78	33,302.86	24,475.00	3,987,399.99	827,579.64
Union Mutual	711,888.19	224,311.10	18,357.53	8,902.95	963,519.77	—30,119.27
United States	819,541.72	205,033.22	2,622.95	.....	1,087,197.89	183,310.22
Vermont	62,662.10	17,254.52	.....	1,330.86	81,247.48	14,254.33
Washington	1,831,526.93	429,761.02	16,307.72	5,409.12	2,283,004.79	536,591.99
	\$107,404,195.47	\$27,658,482.85	\$1,995,365.25	\$900,909.74	\$137,958,733.16	\$38,460,185.37

TABLE NO. 28.

Comprising a detailed Classification of the Gross Expenditures of the Life Insurance Companies transacting business in New Hampshire during the year 1888.

COMPANIES.	Losses and claims.	Endowments and annuities.	Surrendered policies.	Dividends to policy holders.	Total paid policy holders.
Aetna	\$1,509,836.71	\$778,161.59	\$301,567.70	\$591,553.29	\$3,181,119.29
Connecticut General	77,870.00	20,436.80	13,564.28	7,896.35	119,767.43
Connecticut Mutual	3,197,982.65	4,77,769.39	529,228.52	1,160,367.77	5,885,348.33
Equitable Life	6,341,273.83	1,393,187.86	1,773,332.37	2,373,663.38	11,884,457.41
Manhattan	917,989.00	62,742.53	207,527.01	218,187.87	1,406,446.41
Massachusetts Mutual	511,818.00	143,659.00	196,747.58	209,564.00	1,061,788.58
Metropolitan	2,550,105.28	2,259.00	37,772.46	32,922.03	2,623,058.77
Mutual Benefit	2,892,324.53	146,623.65	628,954.64	1,285,897.42	4,953,800.24
Mutual Life	7,231,665.07	2,244,793.74	3,099,251.68	2,151,839.73	14,727,550.22
National Life	291,299.03	32,710.00	140,391.11	155,186.52	619,496.66
New England Mutual	1,201,654.00	292,203.00	304,991.52	594,979.06	2,303,827.58
New York Life	4,412,049.66	2,071,263.53	2,180,269.06	2,309,487.80	10,973,070.05
Northwestern Mutual	1,346,897.84	234,943.00	261,094.92	956,761.17	2,799,696.93
Penn Mutual	823,324.00	75,237.00	202,002.40	519,532.54	1,620,095.94
Phoenix Mutual	577,989.42	161,196.00	101,781.30	116,927.39	957,894.11
Provident Savings	401,232.51	100.00	4,628.79	373,680.61	782,641.91
State Mutual	329,074.52	55,000.00	73,983.05	161,400.93	619,457.60
Travelers' Life & Accident	1,505,085.66	56,555.00	78,407.53	50,855.63	1,640,048.19
Union Mutual	449,002.79	142,831.96	47,461.18	50,855.63	690,151.56
United States	404,465.95	81,831.51	41,116.52	2,220.13	527,413.98
Vermont Life	15,883.00	.....	8,899.89	.....	27,003.02
Washington Life	609,945.24	188,134.18	255,746.93	165,758.00	1,219,584.35
	\$37,598,678.69	\$8,591,638.74	\$10,488,720.44	\$13,444,680.72	\$69,923,718.59

TABLE NO. 28. — *Continued.*

COMPANIES.	Dividends to stockholders.	Commissions, salaries, and expenses of agents.	Salaries and charges of officers and employees.	Taxes and fees.	Miscellaneous expenses.	Total expenditures.
Ætna.....	\$125,000.00	\$466,877.87	\$98,759.33	\$90,980.15	\$81,315.82	\$4,044,052.46
Connecticut General....	12,000.00	37,036.54	17,636.64	4,648.67	7,484.17	198,573.45
Connecticut Mutual.....	.....	282,937.68	128,663.73	294,383.47	607,811.43	6,699,144.64
Equitable.....	7,000.00	2,419,294.78	614,922.66	172,084.66	1,732,146.59	16,829,906.13
Manhattan.....	32,000.00	309,856.93	87,417.68	16,442.03	80,507.85	1,932,670.90
Massachusetts.....	.....	297,718.63	72,408.35	23,823.70	94,454.36	1,550,193.62
Metropolitan.....	35,000.00	1,838,167.72	233,489.12	51,712.32	819,016.72	5,600,444.65
Mutual Benefit.....	.....	529,759.79	163,558.23	163,669.61	72,719.08	5,883,506.95
Mutual Life.....	.....	3,170,578.96	706,054.70	305,273.50	790,200.15	19,699,657.53
National.....	.....	222,166.71	42,912.86	23,472.79	34,001.73	942,050.75
New England.....	.....	179,370.47	115,526.14	37,572.52	184,812.04	2,821,108.75
New York.....	.....	2,754,520.27	547,172.82	203,409.50	911,437.83	15,389,610.47
Northwestern.....	.....	932,254.62	208,791.34	90,850.14	247,496.76	4,279,089.79
Penn Mutual.....	.....	378,377.87	101,044.77	61,714.61	68,155.03	2,122,632.50
Phoenix.....	24,000.00	97,685.15	50,919.70	28,479.28	33,654.26	1,192,388.22
Provident Savings.....	.....	121,140.55	39,781.42	11,685.64	56,668.62	1,011,921.14
State Mutual.....	.....	160,931.78	28,847.50	13,402.81	13,457.91	836,097.60
Travelers' Life & Acct.	96,000.00	816,359.59	176,845.68	44,935.34	385,631.55	3,159,820.35
Union Mutual.....	.....	162,892.95	60,055.52	14,234.91	64,304.10	991,639.04
United States.....	30,800.00	174,365.79	59,497.13	17,896.15	93,914.62	903,887.67
Vermont Life.....	3,000.00	19,862.75	8,583.60	1,738.81	6,804.97	66,993.15
Washington.....	8,571.50	223,153.28	86,739.61	22,736.43	185,627.63	1,746,412.80
	\$373,371.50	\$15,595,310.68	\$3,649,628.53	\$1,695,147.04	\$6,571,623.22	\$98,008,802.56

TABLE NO. 29.

Summary of the Business of Life Insurance Companies transacted within the State of New Hampshire during the year ending December 31, 1888.

COMPANIES.	POLICIES ISSUED IN 1888.		POLICIES IN FORCE DECEMBER 31, 1888.		Premiums received in 1888.	Losses and claims incurred in 1888.	Losses and claims paid in 1888.
	Number.	Amount.	Number.	Amount.			
Aetna.....	81	\$118,998.00	904	\$973,361.00	\$29,676.65	\$25,817.00	\$27,275.00
Connecticut General.....	35	42,086.00	131	161,661.00	5,400.25	3,412.28	3,412.28
Connecticut Mutual.....	36	41,500.00	634	1,414,710.14	25,989.21	20,528.86	20,528.86
Equitable.	18	54,009.00	330	802,200.00	10,001.74	1,830.00	1,830.00
Manhattan.....	.....	.....	72	108,494.00	2,306.65	2,000.00	2,000.00
Massachusetts Mutual.....	200	391,000.00	1,579	2,801,663.00	93,024.12	37,139.00	37,139.00
Metropolitan.	11	12,000.00	* 16	* 21,000.00	35,074.70	16,399.25	16,399.25
Mutual Benefit.....	22	32,023.00	309	534,370.00	12,833.59	15,482.00	15,482.00
Mutual Life.....	436	773,000.00	1,447	2,672,987.00	107,445.99	17,500.00	17,500.00
National Life.....	74	144,500.00	246	364,600.00	12,939.10	.....	1,000.00
New England Mutual.....	.....	.....	227	392,014.00	1,540.85	13,500.00	13,500.00
New York Life.....	73	106,760.00	335	775,985.00	21,771.07	7,409.37	7,409.37
Northwestern Mutual.....	75	153,582.00	253	455,102.00	16,840.73	.....	.....
Penn Mutual.....	20	57,000.00	86	293,000.00	15,060.63	.....	.....
Phoenix Mutual.....	130	181,900.00	707	887,494.00	35,560.99	6,813.00	5,813.00
Provident Savings.....	2	10,000.00	2	10,000.00	74.72	.....	.....
State Mutual.....	6	13,000.00	99	172,520.00	5,079.12	1,000.00	1,000.00
Travelers' } Life.....	23	28,700.00	201	303,381.00	7,415.40	3,334.00	1,500.00
} Accident +.....	2,127	3,466,617.00	1,489	2,773,294.00	26,241.55	13,554.82	13,554.82
Union Mutual.....	60	89,912.60	229	272,616.08	7,903.77	14,101.08	16,445.23
United States.....	4	4,000.00	82	64,800.00	1,736.86	5,790.00	5,510.00
Vermont Life.....	451	202,650.00	373	201,152.00	1,934.00	433.00	433.00
Washington Life.....	4	6,000.00	19	49,655.00	1,780.42	1,000.00	1,000.00
* Industrial policies in force.....	1,761	\$2,462,626.60	8,281	\$13,732,765.22	\$451,389.96	\$193,488.84	\$195,186.99
			8,294	896,808.00			

† Accident business not included in totals.

TABLE NO. 30.

Giving Name, Location, Date of Organization, and Names of President and Secretary of Insurance Companies doing Business in New Hampshire during the year 1888.

N. H. STOCK FIRE INSURANCE COMPANIES.	Location.	Date of organization.	OFFICERS.	
			President.	Secretary.
Amoskeag	Manchester.	May 4, 1886	Alpheus Gay.	James E. Dodge.
Capital	Concord.	Mar. 10, 1886	A. B. Thompson.	Lynman Jackman.
Citizen's	Nashua.	Aug. 13, 1885	Frank A. McKean.	Mark R. Buxton.
Fire Underwriters' Association	Dover.	Dec. 28, 1888	Daniel Hall.	H. A. Redfield.
Granary	Concord.	Dec. 22, 1886	Lynman Jackman.	Thomas W. Lang.
Granite State	Portsmouth.	July 13, 1885	Frank Jones.	A. F. Howard.
Mascoma	Great Falls.	Feb. 27, 1886	Albert A. Perkins.	Almon D. Tolles.
New Hampshire	Lebanon.	Nov. 29, 1886	Albert M. Shaw.	Alpheus W. Baker.
People's	Manchester.	— — 1869	James A. Weston.	John C. French.
Portsmouth Fire Association	Manchester.	Aug. — 1885	Joseph C. Moore.	Stephen B. Stearns.
	Portsmouth.	Oct. 22, 1887	Frank Jones.	Alfred F. Howard.
CASH MUTUAL FIRE INSURANCE COMPANIES.				
Etna	Concord.	July 22, 1886	Frank A. McKean.	Obadiah Morrill.
American Manufacturers'	Concord.	Feb. 25, 1887	Almon D. Tolles.	Obadiah Morrill.
Cheshire County	Keene.	— — 1825	John Henry Elliot.	William H. Elliot.
Concord	Concord.	Aug. 31, 1885	Samuel C. Eastman.	Rufus P. Staniels.
Exeter	Exeter.	Oct. 15, 1885	John Templeton.	George W. Weston.
Home Manufacturers & Traders'	Concord.	Jan. 23, 1886	Frank A. McKean.	Obadiah Morrill.
Indian Head	Nashua.	Nov. 22, 1885	J. H. Goodale.	Mark R. Buxton.
Manufacturers & Merchants'	Concord.	Dec. 29, 1885	Edward G. Leach.	Lynman Jackman.
Phoenix	Concord.	Aug. 3, 1886	Luther S. Morrill.	Lynman Jackman.
State	Concord.	Oct. 17, 1886	Frank A. McKean.	Obadiah Morrill.
ASSESSMENT MUTUAL FIRE INSURANCE COMPANIES.				
Grange Mutual	Milford.	Mar. 28, 1888	Charles McDaniel.	E. C. Hutchinson.
Norrimack County	Webster.	Mar. 29, 1877	Francis B. Sawyer.	Sherman Little.
Rockingham Farmers'	Exeter.	June 27, 1833	George B. Webster.	Henry A. Shute.

ASSESSMENT LIFE INSURANCE ASSOCIATIONS.					
Granite State Mutual Relief Association.	Keene.	Aug. 15, 1883	Edward Gustine.	Edward A. Lyman.	Edward Rawlings.
Provident Mutual Relief Association.	Concord.	July 26, 1878	Benjamin F. Prescott.	Anthony C. Hardy.	Vincent R. Schenck.
Pemigewasset Mutual Relief Association.	Plymouth.	Aug. 19, 1885	Mart M. Davis.	Joseph C. Story.	F. F. Nugent.
FIDELITY AND CASUALTY INSURANCE COMPANIES OF OTHER STATES AND COUNTRIES.					
Accident Co. of North America.	Montreal, Can.	June — 1872	Alexander T. Galt.	Edward Rawlings.	S. Stanley Brown.
American Steam Boiler Insurance Co.	New York City.	Nov. 5, 1883	William K. Lothrop.	Vincent R. Schenck.	Robert J. Hillas.
American Surety Insurance Co.	New York City.	April 14, 1884	William A. Wheelock.	F. F. Nugent.	Edward Rawlings.
Employers' Liability Assurance Corporation.	London, England.	Oct. 25, 1880	Claud J. Hamilton.	S. Stanley Brown.	J. B. Pierce.
Fidelity and Casualty.	New York City.	Mar. 20, 1876	William W. Richards.	Robert J. Hillas.	
Guaranty Co. of North America.	Montreal, Can.	Aug. 2, 1881	Alexander T. Galt.	Edward Rawlings.	
Hartford Steam Boiler Inspection and Ins. Co.	Hartford, Conn.	June — 1886	J. M. Allen.	J. B. Pierce.	
LIFE INSURANCE COMPANIES OF OTHER STATES.					
Ætna.	Hartford, Conn.	— — 1820	Morgan G. Bulkeley.	Joel L. English.	
Connecticut General.	Hartford, Conn.	June — 1865	Thomas W. Russell.	Frederick V. Hudson.	
Connecticut Mutual.	Hartford, Conn.	June 15, 1846	Jacob L. Greene.	William G. Abbot.	
Equitable.	New York City.	July 26, 1859	Henry B. Hyde.	William Alexander.	
Manhattan.	New York City.	— — 1850	James M. McLean.	Henry Y. Wemple.	
Massachusetts Mutual.	Springfield, Mass.	May 1, 1881	M. V. B. Edgerly.	John A. Hall.	
Metropolitan.	New York City.	June — 1866	Joseph F. Knapp.	John R. Hegenhan.	
Mutual Benefit.	Newark, N. J.	Jan. 31, 1845	Amzi Dodd.	Edward L. Dobbins.	
Mutual Life.	New York City.	April — 1842	Richard A. McCurdy.	William J. Easton.	
National.	Montpelier, Vt.	Nov. 13, 1848	Charles Dewey.	George W. Reed.	
New England Mutual.	Boston, Mass.	April 1, 1825	Benjamin F. Stevens.	S. F. Trull.	
New York.	New York City.	— — 1841	William H. Beers.	Henry Tucker.	
Northwestern.	Milwaukee, Wis.	Mar. — 1857	H. L. Palmer.	J. W. Skinner.	
Penn Mutual.	Philadelphia, Penn.	Feb. 24, 1847	Edward M. Needles.	Henry C. Brown.	
Phoenix Mutual.	Hartford, Conn.	May — 1851	Aaron C. Goodman.	John M. Holcombe.	
Provident Savings.	New York City.	Feb. 25, 1875	Sheppard Homans.	William E. Stevens.	
State Mutual.	Worcester, Mass.	Mar. — 1844	A. G. Bullock.	H. M. Wilder.	
Travelers' Life & Accident.	Hartford, Conn.	June 17, 1863	James G. Batterson.	Rodney Dennis.	
Union Mutual.	Portland, Me.	July 17, 1848	John E. DeWitt.	Arthur L. Bates.	
United States.	New York City.	Feb. — 1850	George H. Burford.	C. P. Fraleigh.	
Vermont.	Burlington, Vt.	Oct. 28, 1868	William H. Hart.	C. R. Turrell.	
Washington.	New York City.	Jan. — 1860	W. A. Brewer, Jr.	William Haxtum.	

TABLE NO. 31.

Tax Returns of all Companies from other States and Countries doing Business in New Hampshire during the year 1888.

	Location.	Amount insured.	Premiums received.	Tax of 1 per cent thereon.
Accident Insurance Co. of North America.....	Montreal, Can.....	\$156,500.00	\$722.16	\$7.22
Etna Life Insurance Co.....	Hartford, Conn.....	973,361.00	29,676.05	296.76
American Steam Boiler Insurance Co.....	New York City.....	370,500.00	3,588.58	35.88
American Surety Co.....	New York City.....	90,000.00	634.88	6.35
Connecticut General Life.....	Hartford, Conn.....	161,661.00	5,400.25	54.00
Connecticut Mutual Life.....	Hartford, Conn.....	1,414,710.14	25,989.21	259.89
Employers' Liability Assurance Corporation ...	London, England...	1,419,350.00	10,073.85	100.74
Equitable Life Assurance Society	New York City.....	802,200.00	10,011.74	100.12
Fidelity and Casualty Co.....	New York City.....	364,952.40	2,144.65	21.45
Guarantee Co. of North America.....	Montreal, Can.....	74,700.00	526.50	5.26
Hartford Steam Boiler Inspection and Ins. Co....	Hartford, Conn.....	1,041,000.00	10,784.76	107.85
John Hancock Mutual Life Insurance Co.....	Boston, Mass.....	70,038.00	1,575.61	15.76
Manhattan Life Insurance Co.....	New York City.....	108,494.00	2,306.65	23.07
Massachusetts Mutual Life Insurance Co.....	Springfield, Mass...	2,801,665.00	93,024.12	930.24
Metropolitan Life Insurance Co.....	New York City.....	917,808.00	35,074.70	350.74
Mutual Benefit Life Insurance Co	Newark, N. J.	534,370.00	12,833.59	128.34
Mutual Life Insurance Co.....	New York City.....	2,672,987.00	107,445.99	1,074.46

National Life Insurance Co.....	Montpelier, Vt.....	364,600.00	12,939.10	129.39
New England Mutual Life Insurance Co.....	Boston, Mass.....	392,014.00	1,540.85	15.41
New York Life Insurance Co.....	New York City.....	775,985.00	21,771.07	217.71
Northwestern Mutual Life Insurance Co.....	Milwaukee, Wis.....	455,102.00	16,840.73	168.41
Penn Mutual Life Insurance Co.....	Philadelphia, Penn..	293,000.00	15,060.63	150.61
Phoenix Mutual Life Insurance Co.....	Hartford, Conn.....	887,494.00	35,560.99	355.61
Provident Savings Life Assurance Society... ..	New York City.....	10,000.00	74.72	.75
State Mutual Life Insurance Co.....	Worcester, Mass.....	172,520.00	5,079.12	50.79
Travelers' Life & Accident Insurance Co.....	Hartford, Conn.....	3,076,675.00	33,656.95	336.57
Union Mutual Life Insurance Co.....	Portland, Me.....	272,616.08	7,903.77	79.04
United States Life Insurance Co.....	New York City.	64,800.00	1,736.86	17.37
Vermont Life Insurance Co.....	Burlington, Vt.....	201,152.00	1,934.00	19.34
Washington Life Insurance Co.....	New York City.....	49,655.00	1,780.42	17.80
		\$20,989,907.62	\$507,692.50	\$5,076.93

TABLE NO. 32.

Detailed Statistics of New Hampshire Fires, with Causes thereof, Amount of Losses incurred and Insurance paid. Tabulated from Reports of City and Town Authorities, under the law of 1887.

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
Acworth	1	Farm buildings	\$1,800.00	\$1,000.00	Incendiary.
Albany	1	Portable steam-mill	1,600.00	.....	Unknown.
Alton	1	Dwelling	2,000.00	.....	Incendiary.
Amherst.....	1	Dwelling-house.	100.00	100.00	Defective flue.
Andover	1	Dwelling	5.00	5.00	Defective chimney.
Antrim	1	Store, saw-mill, 8 dwellings....	9,425.00	2,020.00	Chimney.
Ashland	3	Farm buildings.....	2,900.00	1,900.00	Defective chimney.
		Picker-house	100.00	100.00	Tobacco pipe.
		Steam saw-mill	12,000.00	2,250.00	Sparks.
Barnstead	1	Dwelling	2,860.00	1,310.00	Defective chimney.
Barrington.....	1	Grange hall	500.00	.....	Lightning.
Bath.....	4	Store, barn, and dwelling	260.00	500.00	Unknown.
		Sugar-house.....	150.00	.....	Defective chimney.
		Sugar-house.....	175.00	.....	Incendiary.
		Furniture	20.00	20.00	Lightning.
Bedford	2	Farm buildings	2,500.00	1,200.00	Defective chimney.
		Farm buildings.....	900.00	700.00	Chimney.
Belmont	2	Dwelling	7,500.00	1,500.00	Unknown.
		Dwelling	152.00	152.00	Defective chimney.
Bennington	1	Dwelling.....	20.00	12.00	Overheated chimney.
Benton	1	Steam-mill.....	2,000.00	.....	Unknown.
Bethlehem	3	Farm buildings.....	600.00	400.00	Defective chimney.
		Dwelling	550.00	400.00	Burning out of chimney.
		Farm buildings.....	900.00	700.00	Incendiary.

Boscawen.....	2	Barn.....	800.00	.....	Lightning.
Bradford.....	1	Barn.....	2,200.00	700.00	Defective chimney.
Brentwood.....	1	Country store.....	6,500.00	4,000.00	Unknown.
Brookline.....	1	Box factory.....	1,450.00	950.00	Unknown.
		Dwelling.....	1,400.00	1,213.00	Defective chimney.
Campton.....	1	Farm buildings.....	1,600.00	1,375.00	Defective chimney.
Canterbury.....	2	Dwelling.....	2,000.00	700.00	Defective chimney.
		Barn.....	200.00	125.00	Children with fire.
Center Harbor.....	1	Saw-mill.....	2,500.00	None.	Sparks.
Chatham.....	2	Dwelling and barn.....	1,000.00	.....	Defective chimney.
		Dwelling and barn.....	600.00	425.00	Lamp.
Chester.....	2	Dwelling and stable.....	5,000.00	1,525.00	Unknown.
		Dwelling.....	300.00	.....	Children with matches.
Chichester.....	1	Dwelling and shed.....	650.00	400.00	Defective chimney.
Claremont.....	3	Farm buildings.....	2,000.00	1,460.00	Spontaneous.
		Dwelling.....	55.00	55.00	Tobacco pipe.
		Three tanks.....	2,000.00	.....	Sparks from engine.
Colebrook.....	1	Carriage factory.....	1,500.00	500.00	Hot-box.
Concord.....	18	Dwelling.....	15.00	15.00	Chimney.
		Dwelling and barn.....	389.75	389.75	Unknown.
		Greenhouse.....	75.00	75.00	Heating apparatus.
		Dwelling and contents.....	580.00	580.00	Chimney.
		Boiler-house.....	600.00	600.00	
		Fish market.....	230.00	230.00	Spontaneous.
		Dwelling.....	550.00	550.00	Chimney.
		{ High school.....	22,000.00	15,200.00	Unknown.
		{ Church and organ.....	16,500.00	11,000.00	
		{ Three dwellings.....	265.00	265.00	
		{ Chase block.....	1,600.00	1,600.00	Spontaneous.
		{ Merchandise in same.....	450.00	450.00	Unknown.
		Storehouse.....	500.00	500.00	Unknown.
		Dwelling.....	24.00	24.00	Smoking pipe.
		Old state prison.....	10.00	.....

TABLE NO. 32. — *Continued.*

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
Concord — <i>Continued.</i>					
(Penacook, Ward 1).					
Conway.....	5	Dwelling.....	\$3,300.00	\$1,800.00	Incendiary.
		House and barn.....	250.00	250.00	Matches.
		Store.....	150.00	150.00	Gas jet.
		Dwelling.....	50.00	50.00	Stove-pipe.
		Barn.....	200.00	.....	Children with fire.
		Dwelling.....	985.00	985.00	Chimney.
		Country store.....	6,600.00	4,900.00	Defective chimney.
		Barn and shed.....	400.00	218.30	Lightning.
		Dwelling.....	200.00	.....	Lightning.
		Barn and stable.....	1,000.00	675.00	Lantern.
		Tin-shop.....	375.00	225.00	Unknown.
Dalton ...	1	Dwelling.....	1,600.00	975.00	Unknown.
Derry.....	2	Dwelling.....	300.00	.....	Defective flue.
		Barn and shed.....	500.00	127.00	Unknown.
		{ Block.....	175.50	175.50 }	
		{ Stoves and tinware.....	1,000.00	1,000.00 }	Hot ashes.
Dover.....	3	Refrigerator.....	750.00	750.00	Incendiary.
		Dwelling.....	742.00	742.00	Lamp.
Dublin.....	1	Dwelling.....	20.23	20.23	Defective chimney.
Dunbarton.....	1	Three farm buildings.....	2,100.00	1,400.00	Defective chimney.
Deering.....	2	Farm buildings.....	3,900.00	2,600.00	Sparks from chimney.
		Dwelling.....	1,300.00	.....	Defective chimney.
Easton.....	1	Farm buildings.....	1,200.00	1,308.75	Unknown.
Eppingham.....	1	Dwelling.....	800.00	.....	Hot ashes.
Epping.....	2	Academy.....	90.00	90.00	Lightning.

TABLE NO. 32. — *Continued.*

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
Hanover	2	Seven dwellings..... { Dartmouth chapel..... { Organ	\$12,545.00 3,000.00 1,000.00	\$8,195.00 1,000.00	Incendiary. Furnace.
Haverhill	4	Saloon..... Farm buildings..... Store, house, and barn..... Dwelling and barn.....	1,850.00 10,000.00 5,000.00 1,500.00	1,850.00 3,500.00 5,000.00 700.00	Unknown. Unknown. Incendiary. Defective chimney.
Hillsborough.....	1	Dwelling	50.00	20.00	Defective chimney.
Hinsdale.....	2	Dwelling, barn, and shed..... Dwelling.....	1,500.00 1,000.00	1,300.00	Unknown. Burning chimney.
Hollis	1	Cooper-shop.....	600.00	.....	Unknown.
Jaffrey.....	1	Farm buildings.....	2,000.00	990.00	Chimney.
Jefferson.....	1	Dwelling.....	900.00	Contested.	Sparks from chimney.
Keene	7	Railroad building..... Shoe factory..... Dwelling..... Car-house..... Car-house..... Baggage-room..... Ice-house	250.00 3,500.00 50.00 10.00 10.00 200.00 2,450.00	200.00 50.00 10.00 10.00 200.00 990.00	Sparks. Stove-pipe. Sparks. Sparks. Sparks. Spontaneous. Incendiary.
Laconia	2	Dwelling..... Stores	15.00 425.00	15.00 425.00	Sparks. Explosion.
Lancaster	8	Hotel..... Farmhouse.....	140.00 10.00	140.00 10.00	Furnace. Defective chimney.

Lee.....	1	Farmhouse	30.00	30.00	Lightning.
Lempster	1	Dwelling	350.00	300.00	Defective chimney.
Littleton	5	Dwelling	5.00	5.00	Lightning.
		Barns	1,400.00	937.00	Unknown.
		Dwelling	30.00	30.00	Defective chimney.
		Dwelling	20.00	20.00	Kettle of fat.
		Dwelling	1,000.00	.....	Unknown.
		Dwelling and barn.....	1,350.00	850.00	Breaking a lantern.
		Dwelling	1,250.00	850.00	Chimney.
		Three farm buildings	1,500.00	700.00	Unknown.
		{ Dwelling	2,000.00	1,000.00	{
		{ Furniture	400.00	350.00	{
		{ Dwelling and barn.....	900.00	700.00	{
		Farm buildings	800.00	500.00	Unknown.
		Farm buildings	550.00	550.00	Unknown.
Loudonderry	1	Farm buildings	1,500.00	900.00	Unknown.
Loudon	2	Farm buildings	1,500.00	1,500.00	Unknown.
		Farm buildings	275.00	275.00	Unknown.
Lyme	1	Store	58.25	58.25	Stove-pipe.
Manchester	27	Shoe factory	89.00	89.00	Ashes.
		Millinery store	944.00	944.00	Unknown.
		Dwelling	850.00	800.00	Thawing water pipes.
		Dwelling	15,892.33	13,892.33	Defective chimney.
		Dwelling	25.00	25.00	Defective chimney.
		Bakery	15.00	15.00	Sparks.
		Hotel	8.00	8.00	Defective chimney.
		Hotel and stores	12.00	12.00	Defective chimney.
		Dwelling	60.00	60.00	Overheated stove.
		Carload of cotton	150.00	100.00	Sparks.
		Dwelling	30.00	30.00	Defective chimney.
		Boarding-house	50.00	50.00	Overheated range.
		Manchester print-works	12,519.71	.....	Ignition of gases.
		Dwelling	10.00	10.00	Kerosene can on stove.

TABLE NO. 32. — *Continued.*

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
Manchester— <i>Cont'd.</i>		Barn	\$227.00	\$227.00	Fire-cracker.
		Blacksmith shop.....	75.00	75.00	Sparks.
		Oil shed	350.00	350.00	Incendiary.
		Dwelling	20.00	20.00	Defective chimney.
		Dwelling	35.00	35.00	Defective chimney.
		Dwelling	50.00	50.00	Defective chimney.
		Dwelling	350.00	350.00	Defective chimney.
		Dwelling and barn.....	1,600.00	1,600.00	Unknown.
		Stark Mills, belting.....	766.24	766.24	Friction.
		Dwelling	275.00	275.00	Chimney.
		Stark Mills, picker.....	320.85	320.85	Spontaneous.
		Tenement block.....	40.00	40.00	Ashes.
Marlborough.....	4	Dwelling	350.00	350.00	Supposed matches.
		Picker-house.....		.....	Foreign substance in picker.
		Farm buildings.....	1,350.00	.....	Incendiary.
		Hotel	1,622.00	.....	Incendiary.
		Blanket factory.....	1,320.00	1,300.00	Foreign substance in cards.
Marlow.....	2	Dwelling.....	450.00	400.00	Defective chimney.
Meredith.....	3	Tannery.....	180.00	180.00	Sparks.
		Dwelling and stable.....	450.00	450.00	Unknown.
		Dwelling	20.00	20.00	Lightning.
Milford	1	Dwelling and 2 barns.....	1,000.00	900.00	Unknown.
Milton.....	3	Furniture factory	3,000.00	2,200.00	Spark from chimney.
		Barn.....	700.00	.....	Unknown.
		Dwelling and barn	678.00	828.00	Unknown.

		Wool-picket.....	581.45	581.45	Friction. Lightning. Ashes.
Mont Vernon.....	1	Dwelling.....	1,450.00	800.00	
Moultonborough.....	1	Dwelling.....	300.00	.....
Nashua.....	22	Dwelling.....	115.00	15.00	Incendiary.
		Nashua Manufacturing Company	4,162.98	4,162.98	Nails piercing through picket.
		Dwelling.....	10.00	10.00	Smoking.
		Dwelling.....	204.00	204.00	Chimney.
		Dwelling and contents.....	900.00	500.00	Defective flue.
		Stores and contents.....	2,178.00	2,178.00	Overheated stove.
		Lumber in woods.....	50.00	.....	Burning brush.
		Barn.....	200.00	.....	Incendiary.
		Store and contents.....	4,000.40	3,200.40	Incendiary.
		Dwelling.....	12.00	12.00	Defective flue.
		Furniture factory and contents..	3,500.00	1,500.00	Sparks.
		Bank.....	40.00	40.00	Electric-light wire.
		Dwelling.....	10.00	10.00	Defective flue.
		Patent medicine factory.....	150.00	150.00	Spontaneous.
		Dwelling.....	60.00	60.00	Burning out chimney.
		Dwelling.....	276.00	176.00	Children with matches.
		Building and contents.....	12,345.00	7,845.00	Defective chimney.
		Shuttle factory.....	1,446.00	1,446.00	Hot bearing.
		Grocery store.....	1,650.00	1,650.00	Drawing oil.
		Dwelling.....	169.00	69.00	Smoking in bed.
		Block.....	682.79	262.79	Chimney.
		Barn.....	1,000.00	695.00	Incendiary.
New Durham.....	1	Farm buildings.....	1,500.00	200.00	Incendiary.
New Hampton.....	2	Barn.....	400.00	300.00	Lantern.
		Barn.....	2,000.00	1,150.00	Unknown.
Newport.....	1	Saloon.....	700.00	575.00	Burning out chimney.
Newton.....	2	Shoe factory.....	3,500.00	3,225.00	Incendiary.
		Blacksmith's and barber's shop..	650.00	650.00	Unknown.

TABLE NO. 32. — *Continued.*

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
North Hampton.....	2	Dwelling	\$500.00	\$350.00	Incendiary.
		Farm buildings.....	500.00	250.00	Unknown.
Northumberland.....	1	Hotel.....	1,900.00	1,000.00	Incendiary.
Northfield.....	3	Farm buildings.....	1,500.00	500.00	Defective chimney.
		Dwelling.....	630.00	630.00	Unknown.
		Dwelling.....	300.00	50.00	Fire-crackers.
Ossipee.....	1	Saw-mill	3,000.00	.....	Unknown.
Pembroke.....	1	Dwelling.....	1,500.00	1,200.00	Unknown.
Peterborough.....	2	Dwelling and barn.....	2,800.00	.....	Chimney.
		Picker-room.....	150.00	125.00	Matches in cotton.
Piermont.....	3	Dwelling.....	175.00	.....	Children with matches.
		Steam saw-mill.....	150.00	.....	Carelessness.
		Dwelling.....	250.00	190.45	Unknown.
Pittsfield.....	1	Tenement.....	112.11	112.11	Unknown.
Plaistow	2	Barn	3,500.00	950.00	Tramp.
		Dwelling	375.00	350.00	Chimney.
Plainfield.....	1	Farm buildings.....	1,000.00	675.00	Chimney.
Portsmouth	9	Schooner.....	200.00	.....	Explosion of lamp.
		Tenement.....	300.00	300.00	Incendiary.
		{ Block.....	900.00	900.00	Explosion of lamp.
		{ Contents	4,600.00	4,600.00	Smoking.
		Storehouse	600.00	250.00	Unknown.
		Stable	325.00	249.00	Incendiary.
		Hotel	150.00	150.00	Tramp smoking in barn.
		{ Dwelling and barn.....	615.00	615.00	
		{ Tenement and stable.....	300.00	.....

		Lumber building. Dwelling.....	100.00 1,000.00	..... 1,000.00	Sparks. Overheated furnace.
Raymond	3	Boarding-house.....	20.00	.....	Unknown.
		Dwelling.....	187.00	187.00	Unknown.
		Barn.....	550.00	250.00	Unknown.
Rindge.....	3	Dwelling.....	45.00	45.00	Stove-pipe.
		Wooden-ware mill.....	227.00	227.00	Sparks.
		Dwelling.....	80.00	80.00	Burning chimney.
Rochester.....	13	Dwelling.....	300.00	.....	Chimney.
		Block.....	275.00	275.00	Defective flue.
		Dwelling.....	1,600.00	800.00	Lantern.
		Block.....	1,710.00	1,710.00	Lamp.
		Wood.....	100.00	100.00	Sparks from locomotive.
		Dwelling.....	540.00	540.00	Stove.
		Dwelling.....	4.50	4.50	Fire-crackers.
		Dwelling.....	125.00	125.00	Lightning.
		Block.....	31.00	31.00	Combustion.
		Dwelling.....	410.00	410.00	Set by children.
Rollinsford..... (Salmon Falls).....	2	Dwelling.....	18.00	18.00	Pipe left in clothes.
		Store.....	10.70	10.70	Stove.
		Dwelling.....	12.50	12.50	Defective chimney.
		Dwelling and barn.....	1,200.00	.....	Unknown.
		Dwelling.....	500.00	500.00	Fire-cracker.
		Dwelling.....	50.00	50.00	Defective chimney.
Runney	1	Church.....	4,000.00	.....	Furnace.
		Barn and carriage-house.....	550.00	100.00	Unknown.
Rye	2	Farm buildings..	1,316.50	916.50	Unknown.
		Storehouse.....	200.00	.....	Unknown.
		Dwelling.....	25.00	.....	Defective chimney.
		Dwelling.....	1,300.00	1,000.00	Defective chimney.
		Millinery store.....	900.00	500.00	Unknown.
Salem	1	Barn.....	300.00	.....	Children with matches.
		Farm buildings..	1,316.50	916.50	Unknown.
		Storehouse.....	200.00	.....	Unknown.
		Dwelling.....	25.00	.....	Defective chimney.
		Dwelling.....	1,300.00	1,000.00	Defective chimney.
Sandwich.....	3	Millinery store.....	900.00	500.00	Unknown.
		Barn.....	300.00	.....	Children with matches.

TABLE NO. 32. — *Continued.*

LOCATION.	No. of fires.	Property.	Loss.	Insurance paid.	Cause.
Seabrook	1	Barn.....	\$135.00	\$135.00	Incendiary.
South Hampton.....	1	Barn.....	650.00	400.00	Incendiary.
South Newmarket ...	1	Dwelling.....	610.00	360.00	Spark from chimney.
		{ Gents' furnishing.....	4,000.00	3,000.00	
		{ Insurance office.....	800.00	736.00	
		{ Saloon.....	2,746.00	2,746.00	
		{ Store and contents.....	7,450.00	7,450.00	
		{ Furniture store and contents.....	10,000.00	10,000.00	
		{ Fancy goods.....	3,000.00	2,400.00	
Somersworth	7	Barn.....	500.00	400.00	Unknown.
		Dwelling.....	115.00	115.00	Incendiary.
		Dwelling.....	50.00	50.00	Incendiary.
		Store.....	38.00	38.00	Smoking in bed.
		Church.....	1,500.00	1,500.00	Brooms near lamp.
		Dwelling.....	75.00	75.00	Overheated furnace.
		Country store.....	2,650.00	1,750.00	Defective chimney.
Stark.....	1	Shoe factory.....	3,000.00	1,750.00	Unknown.
Stratford.....	3	Farm buildings.....	50.00	2,000.00	Defective chimney.
		{ Farm buildings.....	1,755.75	.....	Lightning.
		{ Farm building.....	325.00	960.00	
		{ Dwelling.....	1,000.00	325.00	Unknown.
Stoddard.....	2	Hotel.....	1,500.00	700.00	Defective chimney.
		Farm buildings.....	2,500.00	Contested.	Incendiary.
Sutton.....	1	Dwelling and barn.....	575.00	1,000.00	Set by insane person.
Surry	2	Dwelling, barn, and sheds.....	3,000.00	310.00	Hot ashes.
Swansey.....	1	Summer hotel.....	15,000.00	9,000.00	Lightning.
Temple.....	2	Dwelling.....	50.00	50.00	Defective chimney.

Tilton.....	2	Dwelling and barn.....	600.00	700.00	Incendiary.
		Dwelling.....	15.00	15.00	Overheated stove-pipe.
Troy.....	1	Hosiery mill.....	25.00	25.00	Sparks.
		Town-house.....	100.00	100.00	Unknown.
Unity.....	3	Hotel.....	2,250.00	1,450.00	Incendiary.
		Dwelling.....	500.00	350.00	Defective chimney.
		Dwelling.....	2,000.00	1,000.00	Incendiary.
Walpole.....	1	Dwelling.....	1,893.75	1,493.75	Unknown.
Wakefield.....	1	Barn.....	200.00	.....	Sparks from locomotive.
Warner.....	1	Farm buildings.....	700.00	.....	Defective chimney.
Washington.....	1	Dwelling.....	400.00	366.66	Defective chimney.
Wear.....	1	{ Dwelling, store, and stable....	5,182.00	4,500.00 }	Unknown.
		{ Shoe-shop.....	4,150.00	2,000.00 }	
Wentworth.....	2	Dwelling and barn.....	1,200.00	.....	Incendiary.
		Farm buildings.....	1,200.00	714.00	Unknown.
Westmoreland.....	1	Dwelling.....	500.00	125.00	Sparks.
Whitefield.....	2	Saw-mill.....	5,000.00	5,000.00	Unknown.
		Lumber.....	700.00	.....	Sparks.
Wilnot.....	1	Dwelling.....	Not given.	Not given.	Unknown.
Winchester.....	4	Box factory and machinery....	3,000.00	600.00	Hot shaft box.
		Whetstone shop.....	3,650.00	2,250.00	Engine furnace.
		Slaughter-house.....	300.00	.....	Carelessness.
		Dwelling-house.....	1,200.00	.....	Unknown.
Wolfeborough.....	2	Dwelling.....	1,000.00	600.00	Unknown.
		Church and shed.....	200.00	.....	Incendiary.

Summary of Causes.

Chimneys and defective flues	73	Fire-crackers	4
Unknown.....	68	Hot-box.....	4
Incendiary	34	Matches	3
Sparks.....	27	Friction.....	2
Lightning	14	Sparks from picker.....	2
Lamps and lanterns.....	14	Tramps.....	2
Overheating.....	12	Smoking in bed.....	2
Spontaneous	8	Burning brush.....	1
Hot ashes.....	7	Electric wire	1
Mischievous children	7	Gas jet.....	1
Burning chimneys	6	Boiling oil	1
Smoking	5	Foreign substance in card....	1
Furnaces.....	5	Burning fat.....	1
Fire-box under boiler.....	4	Thawing water-pipe.....	1
Carelessness.....	4	Insane person	1
Explosion	4		

	1888.	1887.
Total number of fires.....	319	349
Total loss for year.....	\$523,658.71	\$1,657,255.00
Total insurance paid.....	290,153.92	937,183.00

STATE OF NEW HAMPSHIRE.

L A W S

RELATING TO

INSURANCE AND INSURANCE COMPANIES,

JANUARY 1, 1889.

THE
STATUTES OF NEW HAMPSHIRE
RELATING TO INSURANCE,
IN FORCE JANUARY 1, 1889.

COMPILED IN 1885 BY
SAMUEL C. EASTMAN,
OF CONCORD, ATTORNEY-AT-LAW,

Revised by the Commissioner to include subsequent enactments.

INSURANCE COMMISSIONER.

[From chapter 171, General Laws; Laws of 1887, chapters 31 and 38.]

SECTION

1. Insurance commissioner, how appointed and removed.
2. Who may not be appointed.
3. Commissioner to furnish blanks for returns.
4. Report, when made, and what to contain.
5. Commissioner to grant licenses to foreign companies doing business here and their agents.
6. Commissioner to examine companies and their agents.
7. Tax on foreign insurance companies.

SECTION

8. Commissioner's duties when served with process.
9. To examine home insurance companies and obtain injunction, when.
10. Violations of law reported to the attorney-general.
11. Fees for examination and report.
12. Salary of commissioner.
13. Income and bond.
14. To investigate and report fire losses.
15. To hear complaint of excessive rates.
16. Expenses, how paid.

SECTION 1. One insurance commissioner shall be appointed by the Governor and Council, who shall hold office for three years, and until another is appointed and qualified in his stead ; but he may be removed at pleasure by the Governor and Council.

SECT. 2. No director, agent, or other officer of any insurance company, or person who has been such within one year, shall be so appointed.

SECT. 3. Said commissioner shall furnish to every joint stock insurance company and every mutual fire and life insurance company

organized under the laws of this State and doing business therein, annually, in the month of December, suitable blanks, for said companies to make their returns thereon, for the year ending on the thirty-first day of said December, showing the amount of their capital stock, premium notes, amount at risk, risk, receipts, losses, expenditures, assets, liabilities, salaries and emoluments, assessments, rate per cent allowed for collecting, procuring applications, and any other facts in his judgment calculated to give full and satisfactory information relating to the condition and management of said companies during said year; said commissioner shall also furnish to such insurance companies as are not organized under the laws of this State, but doing business therein, in said month of December, annually, suitable blanks, upon which they may make their returns, showing the whole amount of premiums received in money, or in the form of notes, credits, loans, or any other substitute for money, by or on account of said company, during the year ending on the thirty-first day of December, for any insurance made by it on persons or property in this State, also its assets, liabilities, amount of capital stock actually paid in, amount of outstanding risks, and any other facts he may judge necessary to ascertain the business, standing, and affairs of such company, and the commissioner may demand a like statement of its standing and affairs at any other time, when in his opinion the same may be necessary for the safety of the public.

SECT. 4. Such commissioner, on or before the first day of April, annually, shall file in the office of the secretary of state his report, showing the amount of capital stock and premium notes of each company organized under the laws of this State, the amount of property at risk, the amount of losses in the preceding year, the sums assessed, the amount of indebtedness for money borrowed and for losses unpaid, the salaries and emoluments of the president, secretary, treasurer, and each director, and the whole amount each person holding office therein has received, or is to receive for his services for the year; the expense of adjusting losses, the sums paid or allowed for travel and *per diem* to officers and agents while attending thereto, the sums paid agents for each application taken by the company, the rate per cent and the aggregate amount allowed agents for collecting assessments, the amount of assessments laid, and the amount collected on each, and any other facts calculated to give the public full and satisfactory information of the condition and management of such company. He shall also include in his report an abstract of the annual statements made to him by insurance companies of other States doing business in this State, with such statistics, general information and suggestions relating to the subject of insurance as he may think proper to insert in such report, giving the name and location of every such company. The secretary of state shall procure said report

to be printed and distributed annually in the same manner as the report of the bank commissioners.

SECT. 5. Such commissioner shall grant licenses and renewals thereof to insurance companies not organized under the laws of this State, and their agents, authorizing said companies and agents to do business in this State, when said companies and agents shall conform to the provisions of the laws of this State relating to foreign insurance companies.

SECT. 6. The commissioner shall be authorized at any time to examine into the condition and affairs of any insurance company not organized under the laws of this State, doing business, or proposing to do business therein, or cause such examination to be made by some person appointed by him, not interested in such company, and may in like manner examine into the business transacted by any agent of such company in this State, and may require such company or agent to produce all books and papers relating to such company or agency, and to answer in writing, under oath, all reasonable questions relating thereto; and if, in his opinion, the affairs of such company are in an unsound or failing condition, he shall revoke any license that may have been granted to such company, and all licenses that may have been granted to agents of such company, by written notice to the company, and publication of the same in one newspaper in Concord and Manchester, each having the largest circulation in the State from those places.

SECT. 7. The commissioner shall, on or before the first day of April, of each year, assess a tax against every insurance company not organized under the laws of this State, but doing business therein, of one per cent on the whole amount of premiums received in money, or in the form of notes, credits, loans, or any other substitute for money, by or on account of said company, during the year ending on the thirty-first day of the preceding December, for any insurance made by it on persons or property in this State during said year, and shall give notice of said assessment and the amount of said tax, to the president, secretary, or treasurer of every such company, by mail or otherwise, and shall file a list of said assessment with the state treasurer.

SECT. 8. In all cases when the commissioner is served with process, or with notice of any judgment, it shall be his duty to make a written memorandum of the fact, and to forthwith inform the company by letter, mailed by him to the principal office of the company in this country, and shall on the next subsequent day forward the copy of the process or notice served on him to the company sued, in a separate envelope.

SECT. 9. It shall be the duty of the insurance commissioner, upon petition of five or more policy holders of any insurance company organized under the laws of this State, setting forth that they believe such company unsound, or that there is waste or mismanagement in the

affairs of such company, with reasons for such belief, to make personal examination of the affairs of such company, at the expense of such company, and for such purpose he shall have access to all the records, books, and papers of the company, and may examine under oath any officer or agent of such company. If, upon examination, the commissioner shall be of the opinion that the affairs of the company are in such condition as to render it unsafe or unworthy of public confidence, he shall file a petition against such company in the office of the supreme court for the county in which such company has its principal place of business, for closing the affairs of said company; and any judge of said court may issue a temporary injunction to restrain such company from doing business, which shall be dissolved or made permanent by said court, upon the hearing and determination of said petition; and the court may make such further orders and decrees as the circumstances of the case and the protection of the public may render proper.

SECT. 10. Whenever the insurance commissioner shall have reason to believe that any insurance company, or any officer or agent of said company, or any other person shall have violated any law of this State relating to such companies, officers or agents, or the business of insurance, or failed to comply with any requisition of the laws of this State relating to such companies, officers or agents, or the business of insurance, he shall forthwith report the fact, with any information he may have relating thereto, to the attorney-general of the State, who shall, if in his judgment it is advisable so to do, prosecute every such company, officer, agent, or other person therefor; and any such company, officer, agent, or other person, upon conviction, shall be liable, for each offence to a fine not exceeding two thousand dollars and costs of prosecution.

SECT. 11. The commissioner shall receive from each company examined by him, and from each agent so examined, ten cents a mile each way for his actual travel to make such examination, and three dollars for each day necessarily spent in making such examination and report; but if more than one company or agency is examined at the same time in one town, he shall not tax more than one travel, or more than his actual travel from one place of examination to another.

SECT. 12. That the insurance commissioner shall receive an annual salary of fifteen hundred dollars, to be paid quarterly from the state treasury, which shall be in full compensation for his services and such office-clerk assistance as he may require; except that his personal expenses in attendance upon the annual sessions of the national insurance convention of the United States, composed of the insurance officials of the several States, when properly itemized and duly audited by the

Governor and Council, and not exceeding two hundred dollars, may be paid from the state treasury as heretofore. — Laws of 1887, chap. 31, sect. 1.

SECT. 13. It shall be the duty of said commissioner to keep an accurate account of the income of the office, including all fees for licenses issued to foreign companies and their agents, and to pay all such income and fees into the state treasury quarterly; and he shall file with the secretary of state his bond with sufficient sureties in the penal sum of five thousand dollars, conditioned for the faithful discharge of the duties of the office. — Laws of 1887, chap. 31, sect. 2.

SECT. 14. It shall be the duty of the insurance commissioner to inquire into the cause of all fires in the State that he shall deem expedient to investigate, and he shall ascertain the cause of all other fires, so far as practicable, together with the actual loss and the insurance thereon, and tabulated and classified statistics of such results shall accompany the commissioner's annual report. — Laws of 1887, chap. 38, sect. 1.

SECT. 15. It shall be the duty of the insurance commissioner to hear any complaint from any citizen of an excessive rate of insurance, and if it shall appear that said rate is excessive and unreasonable, then said commissioner shall recommend said rate reduced to a reasonable basis, taking into account the hazard and character of said risk and the means and appliances employed to protect said risk from fire. — Laws of 1887, chap. 38, sect. 2.

SECT. 16. The necessary expenses incurred in carrying into effect this act shall be audited and approved by the Governor and Council, and paid out of any money in the treasury not otherwise appropriated. — Laws of 1887, chap. 38, sect. 3.

SUITS FOR INSURANCE.

[From chapter 172, General Laws; Laws of 1879, chapter 13; Laws of 1885, chapter 93.]

SECTION

1. Where suits on policies may be brought.
2. Mistakes, etc., not to avoid policy, when, etc.
3. Company responsible for knowledge of agent, etc., preparing application.
4. Notice of loss to be given company.
5. Losses to be adjusted within fifteen days after notice thereof.
6. Repairs or rebuilding to be commenced within twenty days after adjustment, etc.
7. If company neglect, insured may repair, or rebuild at expense of insurers, etc.

SECTION

8. Suit and service of writ in six months or barred.
9. Not barred, unless insured notified of law by company.
10. Effect, if on trial insured recovers more or no more than determination.
11. Suit against foreign companies; powers of commissioner if judgment not satisfied.
12. Assignees of policies may sue in their own names, when.
13. Copies certified by insurance commissioner competent evidence.
14. Warranties, what are not.
15. To be printed on policies.
16. Valued policies on buildings.

SECTION 1. Every person suffering loss or damage covered by any policy of insurance may bring his action therefor in the county of his residence, if he so elects. — 16 N. H. 177; 25 N. H. 204; 33 N. H. 9; 38 N. H. 232; 41 N. H. 170; 43 N. H. 176; 44 N. H. 238; 45 N. H. 21; 55 N. H. 355.

SECT. 2. No policy of insurance shall be avoided by reason of any mistake or misrepresentation, unless it appears to have been intentionally and fraudulently made; but the party insuring, in any action brought against them on such policy, may show the facts, and the jury shall reduce the amount for which such party would otherwise be liable as much in proportion as the premium ought to have been increased if no mistake or misrepresentation had occurred. — 20 N. H. 551; 31 N. H. 238; 32 N. H. 313; 35 N. H. 328; 38 N. H. 338; 40 N. H. 333, 375; 41 N. H. 170; 43 N. H. 176, 621; 45 N. H. 21; 48 N. H. 41; 52 N. H. 581; 55 N. H. 65, 110, 249, 457; 56 N. H. 326, 401; 58 N. H. 245.

SECT. 3. If any company shall issue any policy, upon an application prepared by a third person assuming to act as their agent or otherwise, they shall be affected by his knowledge of any facts relating to the property insured as if they were stated in the application. — 27 N. H. 157; 37 N. H. 35; 40 N. H. 333, 375; 50 N. H. 297; 55 N. H. 110; 58 N. H. 345, 414.

SECT. 4. In case of loss or damage of any property insured, the party insured shall give notice thereof, in writing, to the secretary, a director, or agent of the company, within thirty days. — 20 N. H. 198; 43 N. H. 621; 51 N. H. 50.

SECT. 5. All fire insurance companies doing business in this State shall, within fifteen days after notice of any loss by fire upon any risk taken by them in this State, adjust the same. — 57 N. H. 160.

SECT. 6. Any company having decided to enter upon any premises destroyed or damaged by fire, to rebuild or repair the same, shall commence within twenty days after said adjustment shall be made, to rebuild or repair, and prosecute the work with all reasonable diligence until completed.

SECT. 7. Any person insured against loss or damage by fire by any insurance company, upon neglect of said company for fifteen days after notice of such loss or damage to said company to adjust said loss, or upon the neglect of said company for twenty days after said adjustment to commence to rebuild or repair any building destroyed or damaged by fire, may proceed to rebuild or repair said buildings at the expense of said company, who shall be holden for all reasonable expenses incurred therein, and loss sustained by their neglect, not exceeding the amount insured; or may commence an action at law and recover the loss or damage sustained.

SECT. 8. If dissatisfied with such adjustment, the party insured may bring his action, by causing his writ to be served on the proper officer or agent of such company, within six months after the reception of such notice in writing, and not afterwards. — 25 N. H. 22; 43 N. H. 621.

SECT. 9. Unless the company, in their notice of the amount of loss or damage determined by them, shall notify the insured that his action will be forever barred by law if his writ is not served on them within six months next after the service of such notice upon him, he may bring his action at any time. — 58 N. H. 469.

SECT. 10. If upon trial the insured recovers more than the amount determined by the insurers, he shall have judgment and execution immediately therefor, with interests and costs. If he recovers no more than such amount, the court may allow interest thereon, and such costs to either party as may be just; but execution shall not issue against the company within three months, unless by special order of court. — 39 N. H. 172.

SECT. 11. Any person having a claim against any insurance company not organized under the laws of this State, arising from any transaction with any agent of said company in this State, may sue therefor in the courts of this State, and any service made upon the insurance commissioner shall be valid and binding on the company, and hold it to answer such suit, and the judgment rendered in such suit shall bind the company as a valid judgment in every respect, whether the defendants appear or not, this provision also to embrace all cases of foreign attachment or trustee suits. If any such judgment shall not be paid within thirty days after notice thereof to the insurance commissioner, he may suspend the power of the company to do business in this State until it shall be paid; and if the company, or any agent therefor, shall issue any policy in this State during such suspension, said company and agent shall each forfeit a sum not exceeding two hundred dollars; but any policy so granted shall be valid and binding against the company.

SECT. 12. In actions on policies of insurance where the same have been transferred or assigned with the assent of the company, either absolutely or as collateral security, the party in interest may bring his action either in the name of the assignor or assignee, as he may elect, but there shall be but one action brought on such policy of insurance, and but one recovery thereon. — 16 N. H. 177; 25 N. H. 204; 33 N. H. 9; 38 N. H. 232; 45 N. H. 21; 50 N. H. 297; 54 N. H. 339; 55 N. H. 110, 249, 457.

SECT. 13. All copies of charters, by-laws, certificates, appointments, and all copies of other papers required by law to be filed in the office of the insurance commissioner, certified by him, shall in all cases be competent evidence in the courts of this State.

SECT. 14. All statements of description or value in an application or policy of insurance are representations and not warranties; erroneous descriptions or statements of value or title by the insured do not prevent his recovering on his policy, unless the jury find that the difference between the property as described and as it really existed contributed to the loss or materially increased the risk; a change in the property insured, or in its use or occupation, or a breach of any of the terms of the policy by the insured, do not affect the policy, except during the continuance of the change, use, or occupation, or of the state of things constituting the breach of the terms of the policy; nor shall any misrepresentation of the title or interest of the insured in the whole or a part of the property insured, real or personal, unless material or fraudulent, prevent his recovering on his policy to the extent of his insurable interest. — Laws of 1885, chap. 73.

[Section 14 applies only to policies made after August 28, 1885.]

SECT. 15. Chapter 172 of the General Laws shall be a part of every contract of insurance to which said chapter is applicable; and said chapter and this act shall be plainly printed in every such contract. No waiver of any part of said chapter or of this act shall be set up by the insurer, and any stipulation of the contract in conflict with this act shall be void. — Laws of 1879, chap. 13.

SECT. 16. In any suit that may be brought in this State against an insurance company to recover for a total loss sustained by fire or other casualty to real estate or buildings on the land of another, the amount of damage shall be the amount expressed in the contract as the sum insured, and no other evidence shall be admitted on trial as to the value of the property insured; *provided*, whenever there is a partial destruction or damage to the property insured, it shall be the duty of the company to pay the assured a sum of money equal to the damage done to the property. And *provided further*, that nothing in this section shall be construed to prevent the admission of testimony to prove over-insurance fraudulently obtained. — Laws of 1885, chap. 93, sect. 2.

NEW HAMPSHIRE INSURANCE COMPANIES AND THEIR AGENTS.

[From chapter 173, General Laws; Laws of 1883, chapter 52; Laws of 1887, chapters 35, 47, and 57.]

SECTION

1. Members of mutual companies exempt from individual liability
2. Policy stipulations instead of note.
3. Limitations of dividends.
4. Company organized under general laws may limit its operations.

SECTION

5. Duties of treasurer, penalty.
6. Company may terminate risks.
7. Officers liable individually when less than fifty thousand dollars insured.
8. Assessments and expenses limited, when.

SECTION

9. Agents, how appointed.
10. Fees to be fixed and stated in policy.
11. Field of operations of each agent prescribed, etc.
12. Agents to give bond, remedy thereon.
13. Embezzlements by insurance agents to be deemed larceny.
14. Returns by companies of this State, fee therefor.

SECTION

15. Returns by assessment companies of this State.
16. Insurance may be against damage by lightning.
17. Treasurers of insurance companies to make return of shareholders.
18. Taxation of insurance companies.

SECTION 1. Members of mutual insurance companies shall not be individually liable to pay any debts of their respective companies, beyond their liability to assessments for losses occurring therein, nor to such assessments beyond the amount of their deposit notes. — 45 N. H. 292; 55 N. H. 48; 56 N. H. 341.

SECT. 2. Mutual fire insurance companies organized under the laws of this State, charging a full cash premium, may limit the liability of their policy holders to assessment by a stipulation or condition plainly expressed in their policies, which stipulation shall have the same binding effect as a deposit note signed by the insurer. — Laws of 1887, chap. 35, sect 1.

SECT. 3. That no mutual fire insurance company organized under the laws of this State and charging a full stock or cash premium shall make any dividend to its policy holders the effect of which will reduce its cash assets below seventy per cent of the gross premiums received on all risks remaining in force. — Laws of 1887, chap. 47, section 1.

SECT. 4. Any such company, organized under the general laws of this State, may, by vote, limit its operation to any city or town; and such vote being recorded in the records of the company, they shall be forever barred from insuring property situate beyond the limits of such city or town.

SECT. 5. The treasurer of every such company shall enter, in suitable books provided for the purpose, all assessments made and sums received from expired and surrendered policies, and shall charge himself with the whole of such assessments, and with all money and evidences of debt of the company received by him, and shall balance his accounts yearly, before the annual meeting; and for neglect of either of said provisions he shall forfeit twenty-five dollars to the person who will sue therefor.

SECT. 6. Any such company may terminate policies therein, by publishing a notice to all persons insured, of the time when such policies will terminate, and at the same time giving or mailing a like notice to each party insured.

SECT. 7. No person insured in such company, or any class thereof, in which the amount insured is less than fifty thousand dollars, shall be assessed any greater sum than he would be if that amount were insured;

but the officers of such company shall be individually liable for the balance not provided for by such assessment.

SECT. 8. No more than thirty per cent above its actual indebtedness shall be assessed by any such company to close its affairs ; and the officers and agents thereof shall not receive more than twenty per cent of the money collected for their services in closing its business. — 45 N. H. 292.

SECT. 9. Agents to take applications for insurance may be appointed by the directors of any insurance company organized under the laws of this State ; but every such appointment, before it shall take effect, shall be recorded by the town clerk of the town in which he resides, and of each town in which he shall act.

SECT. 10. Before any agent is appointed, the fees to be paid by applicants for an application and for a policy, and the cash premium to be paid for insurance, shall be fixed and limited by the directors ; and the amount so fixed and limited shall be stated in his appointment and on each policy.

SECT. 11. The town or towns in which each agent may take applications shall be prescribed and stated in his appointment, and no more than two agents in any county shall be authorized to take applications in any town except that in which they reside.

SECT. 12. Every such agent shall, before acting as such, give bond to the company, with sureties to the satisfaction of the directors, for the faithful performance of his duties, to pay to the company all money by him received for policies or premiums, and to repay, on demand, all other and larger fees than those prescribed by the directors ; and such bond may be sued in the name of the company, by any person from whom money has been taken contrary to said rules.

SECT. 13. Any insurance agent doing business in this State, whether appointed by a company organized under the laws of this State, or otherwise, who shall appropriate to his own use any money, or substitute for money, received by him as such agent, and refuse or neglect to pay over such money, or substitute for money, to the company or party entitled to receive the same, for the space of thirty days after notice to make such payment, shall be deemed guilty of larceny and punished accordingly.

SECT. 14. Every joint stock insurance company and every mutual fire or life insurance company, organized under the laws of this State and doing business therein, shall annually, in the month of January, make and transmit to the insurance commissioner a statement, under oath, of its president and secretary, in accordance with blanks to be furnished by him, showing the amount of its capital stock, premium notes, amount at risk, risk, receipts, losses, expenditures, assets, liabilities,

salaries and emoluments, assessments, rate per cent allowed for collecting, procuring applications, and any other facts calculated to give full and satisfactory information relating to the condition and management of the company, for and during the year ending the thirty-first day of the preceding December, and shall pay the commissioner, upon transmitting the same, the sum of five dollars.

SECT. 15. Every corporation, association, or society doing business in this State, which issues a certificate to or makes a promise or agreement with its members whereby any sum of money or other benefit is to become due or payable upon the decease of a member, shall annually, on or before the first day of March in each year, make and transmit to the insurance commissioner a statement, under oath of its president and secretary, showing its financial standing, the amount and sources of its income, and the amount and manner of its disbursements for the year ending on the preceding thirty-first day of December, and shall make such further statement of its membership and financial transactions as said commissioner may deem necessary to a proper exhibit of its business and standing, in accordance with blanks to be furnished by the commissioner for the purpose; and the acting officers of such corporations, associations, and societies shall be liable to indictment, and subject to a fine not exceeding five hundred dollars and not less than fifty dollars, for violation of the provisions of this act; but this act shall not be construed to affect any benevolent association which pays a funeral benefit. — Laws of 1883, chap. 52.

SECT. 16. Any insurance company may insure against damage to property by lightning, whether such damage is caused by burning or otherwise, and shall be liable therefor.

SECT. 17. It shall be the duty of the treasurer of every stock fire insurance company organized under the laws of and doing business in this State, on or before the first day of May in each year, to transmit to the treasurer of the State a certified statement under oath of the name, residence, and number of shares of each person who was a shareholder on the first day of April next preceding in the company of which he is the treasurer. — Laws of 1887, chap. 57, sect. 1.

SECT. 18. On or before the first day of October annually such companies shall, in lieu of all other taxes against them or their shareholders, pay to the treasury of the State one per cent on the amount of their paid-up capital on the first day of April next preceding. — Laws of 1887, chap. 57, sect. 2.

FOREIGN INSURANCE COMPANIES AND THEIR AGENTS.

[From General Laws, chapter 174; Laws of 1885, chapter 93.]

SECTION

1. Prerequisites to the transaction of business in this State by foreign insurance companies.
2. License required; prerequisites thereto; how long to continue; fee therefor.
3. Agents, who may be licensed; fee; penalty for soliciting insurance without license.

SECTION

4. Returns by foreign insurance companies.
5. Tax on foreign insurance companies, how assessed, and when paid; penalty for non-payment.
6. Effect of removal of suits to U. S. court and of combinations.

SECTION 1. No joint stock insurance company, not organized under the laws of this State, shall be admitted into this State to transact the business of such company, unless it shall possess a paid-up capital of two hundred thousand dollars, invested in securities readily convertible into cash, one hundred thousand dollars of which capital shall be invested in such securities other than mortgages of real estate; nor unless such company shall possess, in addition to such capital, assets equal in amount to all its outstanding liabilities, estimating fifty per cent of premiums received on unexpired fire risks and the whole amount of premiums on marine risks as a liability; and the premium reserve on life risks, based on the actuaries' table of mortality, with interest at four per cent, as a liability; nor shall any mutual insurance company, not organized under the laws of this State, be admitted into this State for the transaction of the business of such company, unless it shall possess two hundred thousand dollars of cash assets invested as above, nor unless it possesses such assets equal to all its outstanding liabilities (including reinsurance, to be estimated as in the case of joint stock insurance companies above named, and including the amount of guarantee capital as a liability); nor shall any such joint stock or mutual insurance company, nor its agents, do business in this State, until it has filed with the insurance commissioner a written stipulation, duly authenticated by the company, agreeing that any legal process affecting the company, served on the insurance commissioner for the time being, shall have the same effect as if served personally on the company within this State, nor until all the laws relating to such insurance companies enacted by this State shall have been complied with.

SECT. 2. It shall not be lawful for any such insurance company to transact any insurance business in this State, unless such company shall first obtain license of the insurance commissioner authorizing the company so to do. Before receiving such license, the company shall file with the insurance commissioner a certified copy of its charter and by-laws, and a full statement, under oath, of its president and secretary, showing the financial condition and standing of the company, in accordance with

blanks furnished by him, except in cases where the company has already filed such annual statement. Upon receiving such copies and statement, if the commissioner is satisfied with the same, and that the company meets and has complied with the requirements of section one of this chapter, he shall grant such license, authorizing such company to do insurance business by authorized agents, subject to the laws of this State, until the first day of April thereafter; and annually thereafter, on the first day of April, such license may be renewed, so long as such company shall comply with the requirements aforesaid, and the commissioner shall regard the company as safe, reliable, and entitled to public confidence. For each license and renewal, as above, the company shall pay to the insurance commissioner the sum of five dollars. Such license may be revoked at any time by the commissioner for the causes and in the manner prescribed by law.

SECT. 3. No person shall act as an agent of any such insurance company until he shall have filed with the insurance commissioner a certificate from the company or its authorized general agent, authorizing him to act as such agent, and obtained license thereon from him so to do, for each company for which he proposes to act. Upon filing the certificate aforesaid, the commissioner shall issue a license to such person to act as an insurance agent in this State, provided the company for which such person proposes to procure or solicit applications for insurance therein shall be authorized to do insurance business in this State, which license shall continue until the first day of April thereafter, unless for cause revoked in the meantime; and upon filing a certificate, as aforesaid, such license may be renewed on said first day of April and annually thereafter; and for such license and each subsequent renewal, the person receiving the same shall pay to the commissioner the sum of one dollar. If any person shall solicit or receive any risk or application for insurance, or receive money or value therefor, for any insurance company or agent, without such license from the commissioner, or after the license granted to him or the company for which he acts as agent has been revoked, he shall be punished for each offence by fine not exceeding one hundred dollars, one half to the use of the prosecutor; but any policy issued on an application thus procured shall bind the company if otherwise valid; *provided, however*, that this section shall not apply to any person who only acts as clerk to any insurance company or agent. — 60 N. H. 458; 61 N. H. 63.

SECT. 4. Every such insurance company doing business in this State, shall, on or before the first day of March, in each year, transmit to the insurance commissioner a statement, under oath, of its president and secretary, of the whole amount of premiums received in money or in the form of notes, credits, loans, or any other substitute for money, by or on account of said company, during the year ending on the thirty-first day of

the preceding December, for any insurance made by it on persons or property in this State, also exhibiting its assets, liabilities, amount of capital stock actually paid in, amount of outstanding risks, and the business, standing, and affairs of the company generally, in accordance with blanks to be furnished by the commissioner, adapted to the business of such company, and shall pay to the commissioner, upon filing said statement, the sum of five dollars. It shall also transmit to the commissioner a like statement of its standing and affairs at any other time when he shall require it.

SECT. 5. Every such insurance company, doing business in this State, shall pay to the state treasurer a tax of one per cent upon its premium receipts as specified in the preceding section, to be assessed by the insurance commissioner, on or before the first day of April each year, on the amount received during the year ending on the thirty-first day of the preceding December. Said tax shall be paid within one month after notice from the commissioner of the amount thereof, and in case any insurance company shall refuse or neglect to pay the full amount of such tax, as aforesaid, the commissioner may, at his discretion, revoke the license of such company.

SECT. 6. Should any insurance company not organized under the laws, but doing an insurance business within this State, make an application to remove any suit or action to which it is a party, heretofore or hereafter commenced in any court of this State, to the United States district or circuit court, or shall enter into any compact or combination with other insurance companies for the purpose of governing or controlling the rates charged for fire insurance on any property within this State, the insurance commissioner shall forthwith revoke the license or authority of said company to transact business, and no renewal of said license or authority shall be granted for the period of three years from the date of such revocation.

—Laws of 1885, chap. 93, sect. 1.

DAMAGES BY FIRE FROM LOCOMOTIVES.

[From chapter 162, sections 8, 9, and 10, General Laws.]

SECTION

1. Proprietors of railroads liable for damage by fire.
2. They may insure exposed property.

SECTION

3. Insurance by owners inures to proprietors paying.

SECTION 1. The proprietors of every railroad shall be liable for all damages which shall accrue to any person or property by fire or steam from any locomotive or other engine on such road. — 38 N. H. 242; 43 N. H. 627; 51 N. H. 505.

SECT. 2. Such proprietors shall have an insurable interest in all prop-

erty situate on the line of such road, exposed to such damage, and may effect insurance thereon for their own benefit.

SECT. 3. Any insurance effected by the owners of such property thereon shall so far inure to the benefit of the proprietors of such railroad that in case of loss such proprietors shall be entitled to a deduction from the damages of the amount received thereon, except the premium and expense of recovering the same, or to an assignment of the policy, upon payment of the whole damages sustained. — 63 N. H. 29.

LIFE INSURANCE POLICIES.

[From chapter 175, General Laws.]

SECTION

1. Life insurance for benefit of married woman, to inure to her sole use.
2. To inure to benefit of party for whom procured.

SECTION

3. If procured with intent and effect of defrauding creditors, party to refund premiums and interest.

SECTION 1. Any policy of insurance on the life of any person, expressed to be for the benefit of any married woman, whether effected by herself, or her husband, or any other person, shall inure for her benefit, or, in case of her death, to her children, if any, against the claims of the creditors or representatives of the person effecting the same. — 58 N. H. 565; 59 N. H. 13; 60 N. H. 54.

SECT. 2. When a policy of insurance is effected by any person on his own life or the life of another, expressed to be for the benefit of a third person or his representatives, the party for whose benefit such policy is so expressed to be made shall be entitled to the sum so insured, against the claims of the creditors or representatives of the party effecting the same.

SECT. 3. But if it appears that such policy was procured with intent and to the effect to defraud creditors of the person effecting the same, the party receiving the money secured by such policy shall be liable to such creditors for the amount of all premiums paid for such insurance and interest.

FIDELITY INSURANCE.

[From Laws of 1885, chapters 48 and 53.]

SECTION

1. Surety companies may be admitted to do business in this State.
2. Liability and solvency.
3. May become surety on bonds.

SECTION

4. Expense of procuring surety, when a charge on estate.
5. Company estopped to deny liability.

SECTION 1. Any surety company incorporated and organized under the laws of any State of the United States other than the State of New Hamp-

shire, for the purpose of transacting business as surety on obligations of persons or corporations, may transact business in this State upon complying with the provisions of all laws relating to foreign insurance companies and their agents, and not otherwise. — Laws of 1885, chap. 53, sect. 1.

SECT. 2. Fifty per cent of the amount received on all outstanding contracts shall be treated as a liability by the insurance commissioner in determining the question of the solvency of the company. — Laws of 1885, chap. 53, sect. 2.

SECT. 3. Any company with a paid-up capital of not less than two hundred thousand dollars, incorporated and organized under the laws of any State of the United States, for the purpose of transacting business as surety on obligations of persons or corporations, and which has complied with all the requirements of the law regulating the admission of such companies to transact business in this State, may, upon production of evidence of solvency and credit satisfactory to the judge, head of department, or other officer authorized to approve such bond, be accepted as surety upon the bond of any person or corporation required by the laws of this State to execute a bond, and if such surety company shall furnish satisfactory evidence of its ability to provide all the security required by law, no additional surety may be exacted, but other surety may, in the discretion of the official authorized to approve such bond, be required, and such surety may be released from its liability on the same terms and conditions as are by law prescribed for the release of individuals, it being the true intent of meaning of this act to enable corporations created for that purpose to become the surety on bonds required by law, subject to all the rights and liabilities of private parties. — Laws of 1885, chap. 48, sect. 1.

SECT. 4. Any court or officer whose duty it is to pass upon the account of any person or corporation required by law to give a bond, may, whenever such person or corporation has procured any such surety company as surety upon said bond, allow in the settlement of such account a reasonable sum for the expense of procuring such surety. — Laws of 1885, chap. 48, sect. 2.

SECT. 5. Any company which shall execute any bond as surety under the provisions of this act shall be estopped, in any proceedings to enforce the liability which it shall have assumed to incur, to deny its corporate power to execute such instrument or assume such liability. — Laws of 1885, chap. 48, sect. 3.

STANDARD FORM OF POLICY.

[From Laws of 1885, chapter 93, section 3.]

SECTION

1. Commissioner to prepare a form.
2. Regulations for use of.

SECTION

3. Form.

SECTION 1. The insurance commissioner shall provide a standard form of policy and contract for companies insuring property in this State, and no license shall be granted, and no company allowed to do an insurance business, unless it shall conform to the regulations of the insurance commissioner.

RULES ACCOMPANYING STANDARD FORM OF POLICY.

1. The name of the company may be printed in the heading in letter according to fancy.

2. Mutual companies may make such changes in the heading of the policy as may be necessary to adapt it to their methods of business. The following is suggested: After the cash consideration, insert "and a note of hand of even date herewith for the amount of \$ ———, signed by the insured and payable to the company at such times and in such portions as the directors may, pursuant to the by-laws of the company, order or assess."

3. The company may use in its policies printed forms of specification and description of property, but no type shall be allowable on the face of the policy smaller than long primer.

4. All blank spaces in the policy may be filled in print or writing.

5. If necessary in effecting insurance, the company may write upon the margin or across the face of the policy, or print upon slips or riders, to be attached thereto; but all such slips, writing, or riders must be separately signed by the company or agent applying the same.

6. Additional blanks, or the names of the officers and directors of the company, date of organization, amount of capital stock, assets, and liabilities, may be printed, if desired, on the back of the policy.

7. The form, shape, or size of the policy is immaterial, provided that it shall contain the same language in type as indicated above.

8. The law under which the policy is made applies to all fire insurance companies doing business in this State, not excepting even the town mutuals.

NEW HAMPSHIRE STANDARD FORM OF POLICY.

No. —.

Made pursuant to Chapter 93, Laws of 1885.

\$ —.

The ——— of ———, in consideration of ——— dollars, to them
Premium. paid by the insured, hereinafter named, the receipt where-
of is hereby acknowledged, do insure ——— against loss or damage by
Amount. fire, to the amount of ——— dollars.

Property insured.

[Here describe property insured.]

This company shall not be liable beyond the actual value of the insured property at the time any loss or damage happens, except on buildings totally destroyed, in which case the full amount of the limitation shall be paid.

Bills of exchange, notes, accounts, evidences and securities of property of every kind, books, wearing apparel, plate, money, jewels, medals, patterns, Property not covered by policy. models, scientific cabinets and collections, paintings, sculpture, and curiosities are not included in said insured property, unless specially mentioned. Said property is insured for the term of ———, beginning on the ——— day of ———, in the year eighteen hundred and ——— at noon, and continuing until the ——— day of ———, in the year Term. eighteen hundred and ———, at noon, against all loss or damage by FIRE originating from any cause except invasion, foreign enemies, civil commotions, riots, or any military or usurped power whatever; the amount of said loss or damage to be estimated according to the actual Perils insured against. value of the insured property at the time when such loss or damage happens, except on buildings, but not to include loss or damage caused by explosions of any kind unless fire ensues, and then to include that caused by fire only.

This policy shall be void if any material fact or circumstance stated in Matters avoided. writing has not been fairly represented by the insured; ing policy. or if the insured, at the time of any loss, has any other insurance on the said property, without the assent in writing or in print of the company; or if, without such assent, the said property shall be removed, except that, if such removal shall be necessary for the preservation of the property from fire, this policy shall be valid without such assent for five days thereafter; or if the insured shall make any attempt to defraud the company, either before or after the loss; and this policy shall be void and INOPERATIVE during the existence or continuance of the acts or condition of things stipulated against, as follows: If, without such assent, the situation or circumstances affecting the risk, shall, by or with the knowledge, advice, agency, or consent of the insured, be so altered as to cause an increase of such risks, or if, without such assent, the said property shall be sold, or this policy assigned, or if the premises hereby insured shall become vacant by the removal of the owner or occupant, and so remain vacant for more than thirty days without such assent, or if it be a manufacturing establishment in which the works or machinery are operated more than the customary or legal working hours, or all night, without the written or printed assent of this company thereto; except that permission is hereby given to operate machinery extra hours, not later than 10 o'clock P. M., for the purpose of equalizing work, a competent man, other than the regular watchman, being kept in charge of those rooms in which shafting

and belts are running, but where the machinery is not at work ; or if such establishment shall cease operation for more than thirty days without permission in writing indorsed hereon ; or if gunpowder or other articles subject to legal restriction shall be kept in quantities or manner different from those allowed or prescribed by law ; or if camphene, benzine, naphtha, or other chemical oils or burning fluids shall be kept or used by the insured on the premises insured, except that what is known as refined petroleum, kerosene, or coal-oil may be used for lighting.

Insured to protect property in case of exposure to fire. If the insured property shall be exposed to loss or damage by fire, the insured shall make all reasonable exertions to save and protect the same.

Statement by insured in case of loss. In case of any loss or damage under this policy, a STATEMENT in writing, signed and sworn to by the insured, shall be forthwith rendered to the company, setting forth the value of the property insured in detail, the interest of the insured therein, all other insurance thereon, the purposes for which and the persons by whom the building insured, or containing the property insured, was used, and the time at which and the manner in which the fire originated, so far as known to the insured. The company may also examine the books of account and vouchers of the insured, and make extracts from the same, and shall have access to the premises and property damaged. It is moreover understood that there can be no abandonment of the property insured to the company, and that the company shall not in any case be liable for more than the sum insured, with interest thereon from the time when the loss shall become payable, as hereafter provided.

Payment of loss to be made within sixty days after proof, unless company elects to replace or repair. In case of any loss or damage, the company, within sixty days after the insured shall have submitted a statement, as provided in the preceding clause, shall either pay the amount for which it shall be liable, or replace the property with other of the same kind and goodness ; or it may, within ten days after such statement is submitted, notify the insured of its intention to rebuild or repair the premises, or any portion thereof separately insured by this policy, and shall thereupon enter upon said premises and proceed to rebuild or repair the same with reasonable expedition.

Referee clause. In case difference of opinion shall arise as to the amount of any loss under this policy, other than on buildings totally destroyed, unless the company and the insured shall, within fifteen days after notice of the loss, mutually agree upon referees to adjust the same, either party may, upon giving written notice to the other, apply to a justice of the supreme court, who shall appoint three referees, one of whom shall be thoroughly acquainted with the kind of property to be considered, and their award in writing, after proper notice and hearing, shall be final and binding on the parties.

The referees' fees shall be equally divided between the company and the insured.

If there shall be any OTHER INSURANCE on the property insured, valid or invalid, whether prior or subsequent, the insured shall recover on this policy no greater proportion of the loss sustained than the sum hereby insured bears to the whole amount insured thereon. And whenever the company shall pay any loss, the insured shall assign to it, to the extent of the amount so paid, all rights to recover satisfaction for the loss or damage from any person, town, or other corporation, excepting other insurers; or the insured, if requested, shall prosecute therefor at the charge and for the account of the company.

If this policy shall be made payable to a mortgagee of the insured real estate, no act or default of any person other than such mortgagee or his agents, or those claiming under him, shall affect such mortgagee's right to recover in case of loss on such real estate; *provided*, that the mortgagee shall, on demand, pay according to the established scale of rates for any increase of risks not paid for by the insured; and whenever this company shall be liable to a mortgagee for any sum for loss under this policy, for which no liability exists as to the mortgagor or owner, and this company shall elect by itself, or with others, to pay the mortgagee the full amount secured by such mortgage, then the mortgagee shall assign and transfer to the companies interested, upon such payment, the said mortgage, together with the note and debt thereby secured.

This policy may be CANCELLED at any time at the request of the insured, who shall thereupon be entitled to a return of the portion of the above premium remaining, after deducting the customary monthly short rates for the time this policy shall have been in force. The company also reserves the right, after giving written notice to the insured, and to any mortgagee to whom this policy is made payable, and tendering to the insured a ratable proportion of the premium, to cancel this policy as to all risks subsequent to the expiration of ten days from such notice; and no mortgagee shall then have the right to recover as to such risks. Mutual companies may vary this clause to suit their methods of business.

In case any special provisions or stipulations not enumerated or inserted above require mention in effecting insurance, such provisions or stipulations shall be legibly written or printed, and prominently and securely attached to this policy, and signed separately by the company or agent.

No suit or action against this company for the recovery of any claim by virtue of this policy shall be sustained in any court of law or equity in this State, unless commenced within one year from the time the loss occurred.

Chapter 13 of the Laws of 1879, chapter 172 of the General Laws, and chapter 73 of the Laws of 1885 are printed on the back of this policy contract, and hereby made a part thereof.

In witness whereof, the said ——— Company have caused these presents to be signed by their president, and attested by their secretary, in the city of ———, but the same shall not be binding unless countersigned by the duly authorized agent of said company at ———.

———, *President*.

———, *Secretary*.

Countersigned at ——— this ——— day of ———, 18—

———, *Agent*.

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FORTY-FIFTH

ANNUAL REPORT

OF THE

RAILROAD COMMISSIONERS

OF THE

STATE OF NEW HAMPSHIRE,

1889.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1889.

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RAILROAD OF NEW HAMPSHIRE
ACCOMPANYING REPORT OF THE
RAILROAD COMMISSIONERS
1889

SCALE OF MILES

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PART I.

COMMISSIONERS' REPORT.

STATE OF NEW HAMPSHIRE.

To the Legislature :

We submit herewith, in accordance with the requirements of the statute, the forty-fifth annual report of the Railroad Commission.

NOTES.— John M. Mitchell, of Concord, succeeded E. B. S. Sanborn, of Franklin, as a member of the Board, October 1, 1888.

The returns of railroad corporations are for the year ending September 30, 1888. The record of the official findings and orders of the Board covers the period from May 1, 1888, to May 13, 1889.

The statement of the permanent improvements upon the several roads refers to the calendar year, 1888.

The Board shall prescribe the form for the annual returns required to be made by railroad corporations, and may from time to time make changes and additions in such form, giving to the corporations one year's notice of any such changes or additions as require an alteration in the method or form of keeping their accounts, and shall, on or before the fifteenth day of September in each year, furnish blank forms of such returns; and said corporations shall, on or before the first day of January in each year, make returns to said Board, subscribed and sworn to by the president, treasurer, and superintendent of each. When a return is defective, or appears to be erroneous, the Board shall notify the corporation to amend the same within fifteen days. The Board shall prepare such tables and abstracts as it deems expedient of all the returns, and make an annual report of its doings, including all such statements, facts, and explanations as will disclose the actual working of the system of railroad transportation in its bearing upon the business and prosperity of the State, and such suggestions as to its general railroad policy, or any part thereof, or the condition, affairs, or conduct of any railroad corporation, as may seem to it appropriate, which shall be transmitted to the secretary of state on or before the first Wednesday in June in each year, to be laid before the General Court at its biennial sessions.— *Sect. 16, chap. 101, Laws of 1883.*

THE RAILROAD SITUATION.

IN GENERAL.

The railroad mileage of the United States at the beginning of the present year was fully 157,100 miles, of which nearly 7,200 miles were built in 1888, upon 365 different lines, in all the States and Territories except Rhode Island and Nevada. The "Railway Age," an accepted authority, to which we are indebted for our statistics on the subject, summarizes the detailed returns with the following results:

TRACK LAID IN THE YEAR 1888.

Ten New England and Eastern States.

States.	Lines.	Miles.	States.	Lines.	Miles.
Maine	4	126	Connecticut.....	2	21
New Hampshire.....	1	2	New York.....	11	71
Vermont.....	4	24	New Jersey.....	6	32
Massachusetts.....	2	7	Pennsylvania.....	16	114
Rhode Island.....	—	—	West Virginia.....	6	53

Five Central Northern States.

Ohio.....	13	148	Illinois	12	309
Michigan	23	347	Wisconsin.....	9	147
Indiana.....	5	79			

Twelve Southern States.

Delaware.....	1	6	Florida.....	10	121
Maryland	1	2	Alabama	16	294
Virginia	9	142	Mississippi.....	3	64
North Carolina.....	13	174	Tennessee	9	185
South Carolina.....	13	221	Kentucky.....	8	353
Georgia.....	10	452	Louisiana.....	3	60

Seven Southwestern States.

Missouri.....	11	260	Colorado.....	14	268
Arkansas	5	51	New Mexico	1	83
Texas	14	322	Indian Territory.....	4	90
Kansas	17	601			

Six Northwestern States.

Iowa	5	42	Nebraska	8	196
Minnesota.....	8	303	Wyoming.....	1	24
Dakota	3	149	Montana.....	6	120

Seven Pacific Coast States.

Washington Ter.....	15	325	Idaho.....	1	12
Oregon	5	116	Arizona.....	1	36
California.....	34	560	Utah	1	6
Nevada.....	—	—			

Recapitulation.

New England and Eastern group	52	450
Central Northern group	62	1,030
Southern group	96	2,074
Southwestern group	66	1,675
Northwestern group.....	31	834
Pacific Coast group	57	1,055
Totals.....	364	7,118

It will be noticed that the average extension of the 364 lines was less than twenty miles, and an examination of the returns shows that only twelve corporations added as much as one hundred miles to their respective lines. From this it appears that the remarkable record of the year was due to the completion of roads previously projected and begun, and it is one of the evidences that 1888 is to be considered as the end of a period when the growth of our railroad systems was stimulated by fierce competition, reckless gambling in futures, and a desire to levy tribute upon the owners of existing railroad properties far beyond the needs of the country or its ability to furnish business. This period, which covers about ten years, has been one of wind sowing by railroad managers, and the whirlwind harvest is already being reaped by stockholders. Within that time, eighteen States, which now have 111,871 miles of road, or over seventy-one per cent of the total in the country, have increased their

mileage 49,000 miles, or more than seventy-seven per cent of what they had in 1879, as follows:

STATES HAVING OVER 3,000 MILES OF RAILWAY.

Rank.	STATE.	Miles, end 1888.	Miles, end 1879.	Increase, ten years.
1	Illinois.....	9,911	7,578	2,333
2	Kansas.....	8,716	3,103	5,613
3	Iowa.....	8,366	4,779	3,587
4	Texas.....	8,211	2,591	5,620
5	Pennsylvania.....	8,132	6,018	2,064
6	Ohio.....	7,715	5,521	2,194
7	New York.....	7,574	6,068	1,566
8	Michigan.....	6,809	3,673	3,136
9	Indiana.....	5,912	4,336	1,576
10	Missouri.....	5,723	3,740	1,983
11	Wisconsin.....	5,430	2,896	2,534
12	Minnesota.....	5,368	3,008	2,360
13	Nebraska.....	5,088	1,634	3,454
14	California.....	4,286	2,209	2,077
15	Colorado.....	4,179	1,208	2,971
16	Georgia.....	3,942	2,460	1,482
17	Dakota.....	3,472	400	3,072
18	Alabama.....	3,007	1,832	1,175
		111,871	63,244	48,797

Thus, in ten years, Texas has added 5,620 miles, Kansas 5,613, Iowa 3,587, Nebraska 3,454, Michigan 3,136, Dakota 3,072—from the little nucleus of 400 miles,—Colorado 2,971, Wisconsin 2,534, Illinois 2,333, Ohio 2,194, California 2,077, and so on. The percentage of increase in the ten years in some of these cases is still more remarkable than the actual mileage; as, for example, Dakota having increased nearly 800 per cent, while Texas gained nearly 125 per cent, Nebraska 110 per cent, and Kansas nearly 100 per cent. Rapid as has been the development of these States and their increase in population and business, it has been slow compared with this railway expansion.

Many of the new roads parallel others which are amply able to do all the business on their lines; some reach into sparsely settled sections for patronage which exists

only in the dreams of speculators ; and others are the creations of the ambition of men more desirous to extend their influence and power and be recognized as railroad kings, than to manage prudently and profitably the trusts which stockholders have committed to their hands. However much this may have contributed to the settlement of the newer States and Territories, or to the temporary advantage of shippers and passengers, it has been a potent cause of loss among the holders of railway securities. Much of the new mileage has not only proved unproductive, but has been, and must have been under the best of management, a burden upon the parent corporations. In addition to this, long-continued strikes upon two of the largest systems, which cost the parties directly interested millions of dollars and exerted an evil influence upon all connecting systems, hostile legislation inspired by popular clamor, rate wars in which the honor of railroad managers and the interests of railroad owners have been ruthlessly sacrificed, numerous and expensive accidents and the shortage of Western crops, have contributed to a sad experience that teaches that railroad securities, which in a country like this should be as safe as any, are to be classed with the most hazardous.

Although twenty thousand miles of new roads were built in 1887-88, and the volume of business has greatly increased during the past two years, the net earnings of all the roads in the country was no more in 1888 than in 1886. Exact figures on this point are not obtainable, for those having in charge the books of unprofitable roads are not inclined to make them public, but of ninety-seven lines whose managers have reported their earnings, only about one half show as large net earnings, with an increased mileage, in 1888 as they did in 1887, and the aggregate of the whole number is a gain of but three per cent ; and when to this list is added the Atchison, Topeka & Santa Fé, the Chicago, Burlington & Quincy,

and other great Western roads that have suffered more severely, the showing will be much less favorable.

During the twelve months ending December 31, 1888, nineteen roads, with almost sixteen hundred miles of track and \$65,000,000 of stock and bonds, were sold for the benefit of creditors, and twenty-two others, with 3,270 miles of track and nearly \$187,000,000 of securities, became insolvent and passed into the hands of receivers. The losses on roads that are still solvent were also enormous. The stock of a single corporation that was a great favorite among New England capitalists shrunk in market value more than forty millions, and others followed it, at a distance, in its downward course.

IN NEW HAMPSHIRE.

The causes that have operated in other States to reduce earnings, abolish dividends, and destroy or depreciate the value of railroad stocks which a year ago were rated gilt-edged, have not been active or potent in New Hampshire. The cutting of through rates by the trunk lines has affected our roads to some extent. No profit has accrued to our old corporations from their recent outlays to aid in the construction of extensions and branches; traffic has not increased, as was anticipated.

Accidents, mostly in other States, have cost the corporations making returns to this board at least four hundred thousand dollars, and their treasuries have been sapped by laws that have been judged necessary by other legislators for the protection of their stockholders and patrons. All this, however, may be accepted as incidental to the business; for it, neither our legislators, courts, nor railroad managers are responsible. Other more serious troubles are of our own making.

With few exceptions our railroad corporations have for three years been engaged in strife with one another,

which has been more costly to them and more damaging to the public than any other in the history of the State.

The people of New Hampshire were brought by slow and laborious processes to recognize the railroad as a public necessity and a public good; but having reached that conclusion, they gave to such railroad corporations as were created from time to time by their Legislature the privilege of dealing with the public without regulation or restriction. While reserving the right to alter and amend railroad charters, they tacitly assented to an unwritten law which made railroad managers dictators of the terms upon which they would discharge their duties as common carriers. Rates depended entirely upon the dictum of presidents and directors; accommodations were good, poor, or indifferent, according to the fancy or judgment of these officials, and railroad tracks and stations were kept in repair, or left to decay and become unsafe, as they deemed for their interest; within its own territory each road was as much the master of its business as was an individual of a purely private enterprise which he owned, and those who did not like the way in which that business was transacted had the poor option of going elsewhere for transportation for themselves and their merchandise.

Under these conditions, the sole reliance of the public for protection from the extortions, recklessness, and incompetency of railroad officials was in cut-throat competition. It was the theory of those days that a railroad would serve the public well only when it was compelled to by fear of a loss of patronage, and that it could be prevented from enslaving and despoiling its patrons only by keeping it so small and weak that it required all its strength to save it from being devoured by rival corporations. Hence the deep and wide-spread distrust of rich and powerful railroad corporations and extensive railway systems, which for many years shaped our legislation on the subject and put upon our statute books the laws to pro-

hibit consolidation. But gradually it became apparent that this remedy was not only unreliable, but that it generally hurt more than it helped. Experience and investigation in other States established the fact that a railroad line could only be operated economically and satisfactorily to the best advantage of patrons and stockholders when the many links of which it was composed were united under one management, and that something besides the restraining and coercive fear of competing roads must be called into play to secure their patrons fair rates and ample facilities.

The Colby act of 1883 was a declaration of a new departure upon these lines. It met a vigorous opposition from many who still dreaded the aggregation of power which would result from extensive railroad consolidations; but after it was passed there was a general acquiescence in the theory upon which it was based, that a strong road was less to be feared and more to be desired than several weak ones. It outlawed the anti-consolidation theory; it authorized and encouraged the union of our New Hampshire roads in a few systems; and while it has proved inoperative in some cases, and the arrangements effected under it have to some extent gone for naught, no attempt has been made to repeal it, and it stands to-day as the enunciation of the principle upon which our roads are to be dealt with in the future. Indeed, all legislation that has been attempted since that time, and all that we have heard proposed, has for its justification the plea that it was or is intended to perfect that act, and enable parties to do what it was then supposed it gave them the liberty to do.

What consolidations have been consummated under that and subsequent acts have proved satisfactory both to stockholders and the public. The union of the Boston & Maine, Eastern, Nashua & Rochester, and Manchester & Lawrence has resulted in lower fares and freights, increased facilities, improved road-beds, tracks, and sta-

tions, reduced expenses, and, in brief, to the advantage of all concerned.

The consolidation of the Sullivan County road with the Connecticut River was effected under a special act authorizing the sale of this property; but it was in line with the policy formulated in the legislation of 1883, and has been followed by improvements of the most substantial kind, which form a convincing argument for the encouragement of similar unions elsewhere. The Atlantic & St. Lawrence, though virtually owned and operated at a heavy loss by a foreign corporation, furnishes in its present condition proof that New Hampshire has much to gain by permitting her weak roads to pass into the hands of those that are strong enough to hold them without studying too closely the balance-sheets relating to their business.

Beyond this, all is chaos and contention. The decision in the Dow case took the Northern system from the Boston & Lowell, and it is now operated by the Boston & Maine under a lease that is liable to be terminated at any time. Several suits brought by the directors of the Boston, Concord & Montreal for the recovery of that road and its branches have resulted in an opinion by the court which invalidates the Lowell lease and turns the road over to the plaintiffs, who, it is understood, would incorporate it in the Concord system if there were no legal obstacles in the way.

It is admitted on all sides that neither the Northern nor Boston, Concord & Montreal will be or should be operated independently, and it is further believed that they cannot be permanently incorporated in the systems of which they are destined to form parts until the Legislature cures the defects in the law of 1883. It is impracticable to consolidate them with other roads, and they cannot be leased against the protest of dissenting stockholders or be operated under traffic contracts covering a

period long enough to warrant necessary outlays upon them, or more than temporary arrangements with their patrons by the lessees; consequently they exist, and have existed for two years, as prizes to be wrangled and struggled and schemed for by the Boston & Maine and Concord, as bones of contention in the courts, causes of bitter and discreditable strife in the Legislature, and corruption and demoralization in political parties. From the beginning the struggle for the control of these two roads has been a fruitful source of crookedness and bad faith, of suspicion and slander, of debauchery of the public conscience, and of damage to the reputation of individuals and the fair fame of New Hampshire.

The material losses are perhaps less to be deprecated, but they are very large. Northern and Boston, Concord & Montreal stockholders as yet receive the dividends which were promised them in 1884, and fares and freights are not unreasonable, but the physical condition of these roads is steadily deteriorating; their operation is of the make-shift order, their dividends are unearned, patrons have no guaranty that contracts made with their managers will be executed, or that needed facilities will be furnished in the future.

Nearly two years ago the building in which were located the general offices of the Boston, Concord & Montreal, at Woodsville, was burned. An old passenger car was sidetracked near by, and into this the general manager, superintendent, and their clerks moved, and they are there to-day attempting, as best they can, to manage the business of this great system, because nobody is securely in possession of it. The old passenger stations at Laconia and Lake Village unfortunately have not burned, and they remain monuments of dilapidation and filth, to offend the senses, threaten the health, and damage the business of the people of two of the largest towns in the State, because there is no corporation that can reasonably be asked to replace

them with suitable structures. A large part of the business portion of the village of Lebanon was wiped out by a conflagration in May, 1887, and much of it has not been rebuilt because there is no one who can give assurance that those who have contemplated locating industrial enterprises there shall receive railroad facilities which will enable them to compete with rivals elsewhere. And these are but three of a thousand facts that call for a settlement of the railroad question and the consolidation of the Northern and Boston, Concord & Montreal systems with others that have the means to put them in first-class condition and operate them to the best advantage.

It may be that the fruits of the railroad war are worth all it has cost. Some sections of the State have profited greatly by it. The Upper Coös, the Lake Shore, and the Tilton & Belknap roads are among its resultants; the city of Manchester and the towns of Derry, Salem, and Londonderry save a hundred thousand dollars a year in the reduction of fares and freights paid by their citizens, and secure accommodations to which they were strangers prior to 1887; similar gains have accrued to towns upon the Boston, Concord & Montreal and Northern systems, for in the reach for popular favor both the Concord and Boston & Maine managers have gone to the very verge of wise concession and given their patrons in this State even more than they had thought of asking for; but this is no argument for a continuance of the strife.

Whatever of good could result to the public from such a struggle for the control of the upper roads as has been witnessed during the last three years has been secured. Fares and freights have been reduced until they are now lower than in any other State where the cost of railway transportation is as great as in New Hampshire; and lower than it is possible to keep them if railroad earnings are to be eaten up in litigation and legislation, and stockholders are to be given any returns for their investments. Few,

if any, other unproductive branches which must be burdensome to the builders will be constructed as the price of support in the Legislature; and there can be nothing new of material benefit to offset the disadvantage of doing business upon a railroad line whose future is as uncertain as the verdict of a jury or the direction of the wind.

Our State has great advantage of position and circumstance in railroad matters, which it should avail itself of while it can be done. Because the managers of two wealthy corporations desire to extend their power and control by building up railway systems in which our roads must be links, they are willing to take these roads upon terms which make them, for the time being at least, sources of loss instead of profit. Because they want our business and what goes with it, they offer to do it at cost or less, trusting to the indirect benefits that may accrue to them from doing a largely increased traffic upon their own roads to balance the draft upon their treasuries from our northern lines. We should take them at their word.

Every interest that is worth considering demands that this railroad war shall end; indeed, we have reached a point where peace at almost any price is desirable. It is not for this board to say in what manner it shall be brought about, what roads shall be united, or how their union shall be effected; but we cannot discharge the duty imposed upon us by the act creating the commission without stating the situation as it is, and insisting as strongly as we can that whatever amendments to our laws are necessary to permit the carrying out of the policy adopted in 1883, to rescue our roads from the conditions in which they are now found, to save them from each other, to secure their permanent incorporation in strong systems, and to enable and compel their managers to put them in first-class physical condition and devote their resources to the service of the public, should be made as soon as possible.

PHYSICAL CONDITION OF NEW HAMPSHIRE
RAILROADS.

The New Hampshire railroads concerning the possession of which there is no contention are in better condition than ever before. Those whose future control is a matter of controversy and doubt are not in as good condition as they were a year ago.

Upon the Cheshire no permanent betterments have been made, except the construction of what is known as the Brewery branch, and enlargement of the cattle sheds in Walpole, but the track, road-bed, bridges, and fences are substantial and in excellent repair. Most of the stations are commodious and well kept, that at Keene being a conspicuous exception, and if there is a lack anywhere it is in the passenger equipment, which is not up to the standard of the times. The Monadnock branch continues to be a reminder that the business upon it does not warrant extensive outlays.

The Connecticut River roads in New Hampshire, the Ashuelot and Sullivan County, are, as usual, above fair criticism. The Ashuelot is easily the best branch road in the State, and the Sullivan County is rapidly being put in condition to compare favorably with any corresponding link in any of our through lines. The permanent repairs and improvements on the Sullivan road for 1888 include the double tracking of that portion of the road between Bellows Falls and South Charlestown, making a line of double track from Bellows Falls to Springfield station, a distance of eight and one half miles. One hundred tons of steel rails were used in repairs of the track. A contract has been entered into with the Boston Bridge Works for the erection, during the summer of 1889, of a new, riveted, lattice iron bridge over the Connecticut river at Windsor, Vt., to replace the present wooden structure. The permanent repairs and improve-

ments on the Ashuelot road include the laying of one hundred tons of steel rails for repair of main track, the laying of 4,800 feet of new turnout tracks at Hinsdale, Ashuelot, and Winchester, and the raising of two and one half miles of main track from six to fifteen inches.

The Grand Trunk was not thoroughly inspected last fall, but is believed to have been kept in good repair. It has a substantial and well-constructed road-bed, a heavy steel track, abundant ties, a wide and clean roadway, and first-class bridges and culverts. A new station at North Stratford and another at Groveton are needed, and increased depot accommodations at Berlin have been asked for.

The work of replacing the old wooden bridges upon the Portland & Ogdensburg with stone and iron structures was nearly completed last year, and this, with some other improvements, has put that portion of the road in New Hampshire in excellent condition to do the business which it has. A good road has taken the place upon that line of one that was sadly out of repair, dangerous, and nearly worthless five years ago. The following are the more important betterments in 1888 in New Hampshire: At Conway Center the passenger station has been remodeled and rebuilt; a new station has been established three miles east of North Conway called "Redstone," and new passenger station, new freight-house, and side-tracks have been constructed; at North Conway the passenger station has been enlarged, remodeled, and rebuilt, new awnings and platforms have been erected, and a new baggage-room built; at Bartlett the yard has been graded and considerable additions have been made to the sidings; the Frankenstein trestle bridge has been re-enforced, and complete new floor has been provided; at Avalanche Brook bridge the old wooden span has been removed, new masonry built, and a new plate girder iron bridge has been erected; the wooden Howe truss at Moore's

brook has been removed, and a new plate girder iron span substituted, resting on new masonry; at Kedron brook a masonry arch has been constructed in place of wooden bridge; a new plate girder iron span has been erected at Beecher's brook, and the wooden span removed; a large number of new ties have been placed in position on the whole line, and a complete new set of road-crossing signs and posts has been erected.

Upon the Boston, Concord & Montreal system a large amount of work has been done, but it is only a beginning of what is needed to put the road in proper condition. Most of it has been upon bridges, and was absolutely necessary in order to get trains safely over the line. This bridge work is of a thorough and substantial character, and will not soon have to be done over. As much cannot be said of the comparatively few other improvements. The repairs upon stations have generally been directed to lengthening out the existence of structures that should have been demolished long ago, and the track-laying has been patchwork which has scarcely served to put new rails in the place of broken and battered ones. From Woodsville to Lancaster the road-bed and track are in bad shape, and above Lancaster they are the worst to be found in the State. Below Woodsville the road is in passable shape, but large outlays are still needed upon the best sections of it, and at such points as Laconia and Lake Village business is done at great inconvenience and heavy cost because of a lack of yard room, sidings, and stations. Following is a list of the betterments as shown by the books of the corporation :

Between Northfield and Tilton, new stringer bridge, length 22 feet.

At Tilton, new strain-beam truss bridge, four spans 35 feet each, total length 140 feet; also repaired the piers and rebuilt one abutment. The bridge over the canal has

been strengthened; length 42 feet. Made extensive repairs upon the long pony lattice bridge, and strengthened the trusses; also built two new abutments, six spans, length 200 feet.

At East Tilton, new stringer bridge over highway, three spans, length 60 feet; made extensive repairs to trestle bridge, length 160 feet.

Between East Tilton and Laconia (Durkee brook), new stringer bridge and rebuilt the abutments; length 20 feet.

At Laconia (near Cook's mill), five-span bridge; drove piles between piers and otherwise strengthened it; total length 176 feet.

Between Laconia and Lake Village, Messer bridge strengthened by driving piles between piers; six spans, total length 242 feet.

At Lake Village (Cole's underpass), new stringer bridge, length 14 feet; pony lattice bridge north of freight depot, drove piles between piers and otherwise strengthened; six spans, total length 224 feet.

Between Lake Village and Weirs (Prescott's cattle-pass), new stringer bridge and rebuilt the abutments, length 8 feet.

Between Plymouth and Quincy, two new overhead highway bridges, three spans each, length 75 and 60 feet respectively.

At Rumney (near camphor-works), new stringer bridge, length 16 feet.

Between Rumney and West Rumney, new stringer bridge, length 18 feet.

Between West Rumney and Wentworth, new stringer bridge, length 18 feet.

At Warren, new stringer bridge, length 21 feet.

Between Warren and Warren Summit, two new stringer bridges, length 15 and 22 feet respectively.

Between Warren Summit and East Haverhill, six new

stringer bridges over cattle-passes and brooks, average length about 15 feet each.

Between East Haverhill and Pike's, new stringer bridge, length 14 feet.

At Pike's Station, new track stringers and ties on deck bridge, length 45 feet; new overhead highway bridge, length 40 feet.

Between Pike's and Haverhill, new stringer bridge, length 18 feet.

Between Woodsville and Bath, Rum Hill deck bridge strengthened by putting in heavy rods and needle beams, length 160 feet.

Between Bath and Lisbon, covered bridge strengthened same as Rum Hill bridge, two spans, total length 131 feet; new overhead bridge, three spans, length 75 feet.

Between Lisbon and North Lisbon (Salmon Hole), new overhead highway bridge, length 21 feet.

At North Lisbon (covered bridge), new floor system, length 90 feet.

Between Littleton and Libby's (covered bridge), new floor system, length 150 feet.

At Libby's, new strain-beam truss bridge, length 44 feet.

At Bethlehem, new pile bridge, length 75 feet.

Between Bethlehem and Twin Mountain (Ammonoosuc covered bridge), new floor system, length 94 feet.

At Twin Mountain (covered bridge), new pier built and bridge thoroughly repaired and strengthened, length 160 feet.

At Whitefield, new stringer bridge with truss rods underneath, length 31 feet.

Recapitulation: Railroad bridges, new, 586 feet; railroad bridges repaired, 1,874 feet; highway overhead bridges, new, 331 feet; total, 2,791 feet.

Most of the bridges above mentioned have had new floor systems, with wooden guard sticks notched on and bolted, so as to prevent the ties bunching together. The

floor timbers and ties on open bridges are of hard pine ; on covered or through bridges the floor timbers and ties are of spruce. The bridges and culverts (thirty-one in number) between Fabyan's and the base of Mt. Washington have been carefully looked after and kept in good repair.

At North Concord, extensive repairs to depot and platform. At Laconia, repaired passenger depot and painted same inside and out. At Plymouth, built new hand-car house. At Woodsville, built new freight depot to take the place of the old depot burned.

At Fabyan's, a new engine-house was constructed with capacity of five pits ; new iron turn-table, length 50 feet ; new boarding-house for railroad employés, and new coal trestle nearly completed ; also built new hand-car house. Many other buildings along the line have been shingled and otherwise repaired.

There have been laid between Concord and Woodsville $801\frac{1}{2}$ tons new 60-pound steel rails, replacing about 748 tons of 56-pound steel rails. About 330 tons of the 56-pound steel rails that were taken up were used to replace old iron rails between Scott's Station and Lancaster, and about 15 tons were relaid in Fabyan yard. The balance of the old steel rails that were taken up has been used in relaying some of the yards and in side-tracks between Concord and Woodsville.

Eighty-nine thousand four hundred and two new ties have been laid in the main line and side-tracks, and 2,021 new ties used in the extension and side-tracks of the Kilkenny Railroad. The Kilkenny Railroad has been extended about 2,400 feet, and 443 feet of new side-track laid.

Sixteen thousand and forty-nine feet of new side-track (including extensions to old) have been laid between Concord, Fabyan's, and Groveton Junction. Some of the principal places where new side-tracks have been laid and old ones extended are North Concord, Canterbury, Lake

Village, Bridgewater, Plymouth, P. V. switch north of Plymouth, Wentworth, Warren Summit, Woodsville, Bethlehem Junction, Fabyan's, Lancaster, and Groveton Junction.

About 1,500 feet of new side-track have been laid on the Pemigewasset Valley Railroad, to accommodate the increased logging and lumber business.

The larger amount of ballasting on the main line has been done between Concord and Woodsville. The condition of the road-bed shows that it has been carefully looked after over the entire system, and it has been somewhat improved at various points by ballasting, widening, and making shoulders where most needed. Considerable amount of grading has been done in the yards at the principal stations where new side-tracks have been laid and old ones extended.

The improvements upon the roads which are permanently fixed in the Boston & Maine system, like those upon the main line of the Concord, emphasize in a striking manner the argument elsewhere advanced for the settlement of the railroad war and the union of our weak lines with those that are strong. These betterments are not spread over a great deal of ground; they do not merely cover defects; they are not for this season or this year merely; they are not simply those which could not possibly be longer postponed; they are substantial, thorough, and most of them will outlive the men who made them; they will bear the closest inspection and the severest tests. The more important are these:

Upon the main line of the Eastern division, a new draw has been put in the bridge between Portsmouth and Noble's Island. There have been laid in New Hampshire, upon the Eastern division, 617 tons of new steel rails, and 927 feet of new side-track have been built. On the Portsmouth & Dover branch, they have renewed about two thirds of the pile bridge, have built a pier

under one end of the truss at the end of this pile bridge, and are now preparing for a crib and pier at the other end. At the highway bridge near Sawyer's Station they have built new abutments, and have laid upon the Dover & Portsmouth branch two hundred tons of steel rails.

On the Northern division, they have built three new queen truss spans at Milton; built a double passage-way at North Conway, with first-class stone masonry and twenty-inch I beam stringers; put in a connecting track at Rochester, between the Portsmouth, Great Falls & Conway and Dover & Winnepesaukee, 1,612 feet long, so that trains are now run through from Worcester, via Rochester and Great Falls, to Rollinsford, where they connect with those from Boston and Portland without delay; laid on the Portsmouth, Great Falls & Conway 29,806 new ties and 969 tons of steel rails, on the Dover & Winnepesaukee 9,809 new ties and 600 tons of steel rails, and on the Wolfeborough branch 3,618 ties and put in 4,915 feet of new sidings. A gravel train was run on this division all summer.

On the Manchester & Lawrence Railroad, they have built a new top for the Hayward Brook bridge; have laid six miles of steel rails and put in 16,075 cross-ties.

Upon the Western division in New Hampshire, they have built the Salmon Falls bridge. This bridge has been built entirely new,—abutments, piers, and bridge. It is now a riveted, lattice iron bridge of sufficient strength to permit the passage over it of the heaviest rolling stock known in the country without straining any member thereof more than ten thousand pounds to the square inch. It is 487 feet long, and cost, masonry included, \$121,139. At South Newmarket, they have built a new freight-house; enlarged their yard room so much as to give an opportunity of passing through the village by a double track, and still have yard room and freight-house room sufficient for the place for many years to come.

Upon the Western division in this State, about one thousand tons of new steel rails have been laid.

On the Lowell system, they have completed the wooden lattice bridge over the Nashua river at Nashua; built over eleven stringer bridges between Nashua and Keene; built new abutments and put on plate girder bridges at Coolidge's Mills; built over several cattle-passes and culverts between Nashua and Keene and on the Stony Brook Railroad, and laid 1,249 tons of steel and 27,575 cross-ties, and built three hundred rods of side-track.

On the Worcester, Nashua & Portland division, overhead bridges have been built at Hampstead, Fremont, and Lee. A new bridge has been put in the road over the highway just east of Nashua. Several of the truss bridges have been re-enforced and strengthened. Passenger stations at West Rochester, Barrington, Fremont, Sandown, Hubbard's, Windham, and West Windham have been repaired, repainted, and had new platforms built to them. They have put in a new fifty-ton scale at Nashua, and have laid seven miles of steel rails and built 5,595 feet of new side-track.

The permanent improvements upon the main line of the Concord road have been made in accordance with a plan designed to make this physically, as it is financially, one of the best in the country. They include a new iron bridge over the Pennichuck river, between Nashua and Thornton's Ferry, the rebuilding of the wooden bridge at Hooksett, and a new engine-house, coal-sheds, and water-tanks at Manchester, which we are assured are preliminary to a new passenger station at that point. The roadway, road-bed, tracks, and fences have been kept up to the highest standard, and the sidings and yards have been greatly extended and improved to meet the demands of the large and steadily increasing traffic. With the completion of the bridge-work, now under way, and the erection of several stations, for which plans have been

drawn, there will be little to be asked for on this line for a long time. The only structure built upon the branch roads of the Concord system is a depot at East Epping, and the work upon them has been mainly directed to the improvement of the grades and tracks. Of sidings there were laid, upon the Concord proper, 7,937 feet; upon the Concord & Portsmouth, 4,018 feet; upon the North Weare, 1,690 feet; upon the Suncook Valley, 3,804 feet, and upon the Acton, 950 feet. The new ties used upon the whole system number 48,327, and 2,201 tons of new steel were put into the track.

The Northern has been kept in as good repair as could be expected under the circumstances, but there is need of expensive betterments upon it, which can well be afforded when it is determined what corporation will use them. Upon the main line twenty bridges were rebuilt, the Concord coal-shed was repaired, and a new roof built and trestle added. A new rail-shop was built at Franklin, and a new building at West Andover for baggage and express. General repairs have been made upon the buildings, and all the bridges have been strengthened. Forty-six thousand one hundred and twenty-two cross-ties and 51,687 feet of switch-ties were laid; two thousand six hundred and ninety-one rods of fence were built, and seventy-six tons of steel and eighty-nine tons of iron rail were laid.

Upon the Concord & Claremont, eight bridges were rebuilt, the Bradford water-house was enlarged and repaired, and 46,016 cross-ties, 31,373 feet of switch-ties, 137 tons of steel and 191 tons of iron rails were laid.

The narrow-gauge roads, which are used only in summer, were thoroughly repaired and in excellent condition last fall. The lumber roads were not inspected.

THE NEW ROADS.

The Upper Coös, which was built from North Stratford to West Stewartstown in 1887, was extended last year to Cookshire, Canada, where it connects with the Canadian Pacific, making a line from Quebec to Boston five miles shorter than any other. The extension is thirty-eight miles long, making the total length of the Upper Coös fifty-eight miles. The two miles between West Stewartstown and the state line was the only new road built in the State last year. Included in it is a Howe truss bridge 314 feet long, which was constructed across the Connecticut river at a cost of about \$18,000. It is one of the most substantial in the State. That portion of the Upper Coös which was built in 1887 has been greatly improved since by regrading, fencing, and the construction of needed culverts, crossings, and platforms. A new union station for the joint use of this road and the Grand Trunk is to be erected at North Stratford this summer.

The Lake Shore was graded and made ready for the track last fall. It runs from the Boston, Concord & Montreal station in Lake Village to Alton, where it forms a junction with the Dover & Winnepesaukee branch of the Boston & Maine. It skirts the south shore of the lake, and commands a view of some of the most enchanting scenery in the world, making accessible hundreds of delightful locations for summer residences, and will undoubtedly be a popular route to and from the White Mountains. It also furnishes a short line from Laconia, Lake Village, and the adjacent country to tide-water, over which coal and other supplies can be taken at less cost than by any other route, and will greatly convene all those having occasion to journey from Grafton and Belknap to Strafford and Rockingham counties. The rails will be laid in season for the summer travel this year. It is the property of an independent corporation which exists under the auspices and support of the Concord.

The Tilton & Belmont road, from the Boston, Concord & Montreal track in Tilton to Belmont village, a distance of about seven miles, was also graded last year, and will be opened for business this. Like the Lake Shore, it is a child of the Concord, and will benefit a number of people who were sagacious enough to take advantage of the situation in 1887 to secure a promise that it should be built.

EQUIPMENT AND OPERATION.

FARES AND FREIGHTS.

There was no material change in the local fares and freights last year, but the increased use of mileage tickets upon the Boston & Maine and Concord systems had the effect to greatly reduce the passenger charges. These tickets are sold in books containing coupons for 1,000 miles, which are accepted in payment of fares from any person or number of persons, the price being \$20 per book. They are in general use by commercial men and all others who ride much on our roads, and the cost of travel to these classes is but two cents per mile on any New Hampshire railroad except those in the Connecticut Valley, the Atlantic & St. Lawrence, and the summer roads. Single-trip tickets are sold on the Boston & Maine system for three cents, on the main line of the Concord for two cents, and on the Concord branches for about two and one fourth cents per mile. Freight rates are not, as a rule, correspondingly low, but they are much less than they were five years ago, and no complaint has come to the Board since our last report that they are excessive.

Considered as a whole, our State has, we believe, lower rates for both passengers and freight than can be found in any other in which railroad business is done under the same disadvantages as here. The purchaser of a mileage ticket may ride through our mountain regions, where passengers are few and the cost of operating railroads is

very great, for about the same price per mile as is paid by the patrons of roads whose cars are always crowded with passengers, and whose managers do not have to contend with heavy grades, deep snows, and destructive freshets; and the same is relatively true of shippers of freight. Because our roads are links in through lines terminating in Boston, we get practically through rates on local business; because the managers of these lines must needs control our roads in order to perfect their systems, they try to reconcile us to such control by giving us the same facilities that are accorded others who furnish a much larger and more profitable business; but, as has been suggested elsewhere, a continuance of these favors is only to be secured by the permanent union of our weak and strong roads. The Concord and Boston & Maine can undoubtedly be operated independently, or as they are to-day, be kept in first-class condition, and be made to earn large profits without advancing rates; but neither the Boston, Concord & Montreal, or Northern systems can pay fixed charges and fair dividends when run as separate roads, under the present schedule of fares and freights.

CAR HEATING.

The law of 1887, prohibiting the use in this State of common stoves in passenger and baggage cars except upon mixed trains, after January 1, 1889, has been generally complied with. During the winter, the cars upon the Connecticut River system, four trains on the Cheshire, all those on the Portland & Ogdensburg, and an express train on the Manchester & Lawrence have been heated by steam from the locomotives in a manner satisfactory to both passengers and railroad officials.

Upon other roads, Baker and Johnson heaters have, with the approval of the Board, been substituted for the stoves formerly in use, and this is the best that can be done at present, or until the Massachusetts and Vermont

roads, with which our own connect, adopt some system of steam-heating with interchangeable couplings, which they will undoubtedly do as soon as this method has passed the experimental stage and the most serious objections to it have been removed. It can be demonstrated, we think, that it is cheaper to warm an ordinary train of cars with steam from the locomotive than in any other way, and this being the case, railroad managers may be trusted to make the needed changes in apparatus as fast as they are convinced that the new plan is as safe and more satisfactory to patrons than the old.

AUTOMATIC COUPLERS.

The adoption of the Janney type of coupler by the Master Car Builders' Association has not been followed by much progress in the direction of saving trainmen from the dangers incident to coupling freight cars, and we are compelled to repeat the statement of previous years, that of the thousands of patented couplers which have been tested upon our American railways not one meets the requirements. The judgment of so eminent an authority as the Car Builders, that the Janney is the best that has been offered, is to be accepted for the present, but even this fails in many cases; and most of the others, including many that have secured the approval of state legislatures and commissioners, have proved to be more productive of annoyance and serious accidents than were the old-fashioned devices which they were intended to supplant. Brakemen instinctively and emphatically condemn the whole lot, and many of them insist that the old link and pin is preferable to any automatic coupler,—a conclusion that is borne out by the experience in this State, where accidents are oftener caused by these patented machines getting out of repair and failing to work than by any trouble with couplers of primitive pattern. Whether we have now or must wait longer for an auto-

matic coupler, which, if it were in general use upon all our freight cars, would largely reduce the slaughter and maiming of those whose duty it is to make up trains, it is evident that we cannot reasonably expect to accomplish much in this direction until by the concerted voluntary action of all American roads, or compulsory legislation of Congress, or the mandate of the interstate commission, a uniform type of coupler is adopted and applied to all freight cars. It would amount to very little to equip the freight cars built in New Hampshire with perfect couplers if those from other States which run over our roads are not furnished with the same pattern, and the same may be said of train-brakes, to which we are undoubtedly coming in the near future. In the judgment of this Board, while it is very desirable that all freight trains be supplied with automatic couplers and train-brakes, it is a matter beyond our control or that of the Legislature, and nothing is to be gained by any legislation upon the subject at present.

ACCIDENTS.

Including three men who were swept away with a bridge at Hooksett, thirty persons were killed upon the railroads in this State during the twelve months ending May 1, 1889. Sixteen were railroad employés. Two fell from the top of moving cars for reasons not fully ascertained; one was hit by an overhead bridge and one by the roof of a freight-house; three were coupling cars; one was walking on the track; two stepped in front of locomotives; one fell between two cars, and one was killed by a collision. Of the fourteen victims not in railroad employ, a child was playing and five men were walking upon the track, one man jumped from a moving train, three attempted to get upon cars in motion, and two men and two women were killed upon crossings. We are again able to repeat the remarkable statement, that since

1884 no passenger has been seriously injured in a car in this State.

This Board has repeatedly called attention to the large number of casualties resulting from trespassing upon the track, and we desire to emphasize all we have said on that subject and at the same time to urge the necessity of some legislation which will, in a measure, prevent the loss of life and limb chargeable to the use of railroads as highways by those who have no right upon them. It is the common habit of people who walk between two points that are connected by rail and carriage road or foot-path to take the track, especially when by so doing they shorten the distance or obtain an easier route, and the result is, that the tracks in our larger towns and those paralleling our main highways are almost constantly occupied by people who are not only in constant danger of being run down and killed, but who apparently act upon the assumption that they are perfectly safe, and may, therefore, be as careless as suits their fancy or convenience. Not a day passes when engineers do not have to bring their trains to a stand-still to prevent crushing the life out of such trespassers, and it is not strange that the utmost vigilance and the promptest action on the part of trainmen is often unavailing. Another fruitful source of fatalities is the loitering about stations and yards by men and children who have no business there, and no excuse for going there except to meet others who should be somewhere else.

Since September 30, 1885, one hundred and four persons have been killed upon the railroads in this State, of whom forty-five were employés of the road. Of the fifty-nine not in railroad employ twenty-seven were trespassers, most of them being pedestrians who were walking upon the track. During the same time but twelve persons have been killed upon crossings, and but six while coupling cars. From this it appears that more than twenty-five

per cent of all the fatalities which we are called upon to investigate would not occur if people could be restrained from going upon the track when they have no right there, and that twenty-seven persons are killed while trespassing as often as twelve lose their lives upon grade crossings and six when coupling cars.

In Massachusetts last year, of two hundred and forty-four fatal accidents one hundred and fourteen were caused by trespassing, while but twenty-seven people were killed upon grade crossings, and during the last ten years the average number of casualties to trespassers in that State has been one hundred and forty-eight as against forty-three fatal grade-crossing accidents. A similar exhibit is made by the official reports in other Eastern States and, indeed, in all the States of the Union. But in most of them, while there is constant and persistent effort to compel, by legislation and otherwise, railroad corporations to protect the lives of their employés by using automatic couplers and train-brakes, and to lessen the number of crossing accidents by the employment of flagmen and gates and the abolition of grade crossings wherever it is practicable, there has been scarcely a serious attempt, so far as we can learn, in any Legislature to frame and enact a law which will in any way lessen the terrible destruction of human life chargeable to the American habit of using railroads as foot-paths and pleasure grounds. What might be done in this direction is indicated by the experience in other countries.

The last report of the Massachusetts commissioners contains the following facts disclosed by an extended investigation of this subject by that board and by experts employed by it :

“ The number of trespassers killed and injured in New York State in the year 1887 was 1 to 20 miles of track, while in Massachusetts, for the same year, it was 1 to

every 10.4 miles of track, and last year it was 1 for every 10.5 miles of track.

“From the correspondence appended to the report in relation to accidents from a similar cause in England, it appears that the number of trespassers killed in Great Britain in the year 1887 was 203, suicides 70, and injured 114, making a total for the year of 387. This is only 1 to every 50 miles of road. Estimating by train miles, there was 1 accident to trespassers in England to each .73 million train miles, while in Massachusetts there was 1 to each .21 million train miles.

“In Germany the cases of injuries to trespassers are so rare that they are not separately classified in the railroad statistics. The precautions are such that it is extremely seldom that any one, other than an official or employé, knowingly walks on the track. In the year 1886-87, in Germany, the total number of private persons reported as killed and injured on the tracks, including all those private persons injured at grade crossings and at stations,—the latter forming by far the greater part of the whole,—was 307, or 1 to each 77 miles of road.

“For Massachusetts, the total of all the above classes put together would be 274, or 1 to each 7.5 miles of track. The population of Germany per square mile does not differ materially from that of Massachusetts.

“The success in Germany in dealing with this subject seems to be due to various causes. First, the arrangement of their stations; the inclosing of their station grounds, the use of fences between tracks at important stations to prevent people from crossing the tracks, and the furnishing of convenient means for passing over or under the track; secondly, the protection by gates of all the grade crossings on the principal lines; third, police regulations.”

“Professor Goering, in his report, states:

Not only in Germany is it looked upon as an offence and known to be punishable to enter upon the property of another, but it is strictly forbidden to enter, without permission, upon the right of way of railroads outside of grade crossings and station platforms, or to cross the tracks at grade crossings if the gates are closed. Offences of this kind are severely punished. Everybody in Germany, from childhood up, knows that he runs a great danger and renders himself liable to a considerable fine by going on to a right of way or upon the tracks, or by undertaking, after leaving a train, to go diagonally across or along between the tracks, instead of taking the prescribed exit from the station platform to the street. Every brakeman, station employé, or flagman has in such cases the right, as a member of the railroad police, to arrest the offender at once, and to conduct him to the nearest police station, unless the offender is able to give satisfactory proof of his identity, and to deposit security equivalent to the amount of the fine to which he is subject. In cases of roads with a heavy traffic, and especially at and in the neighborhood of stations, it is in fact almost impossible, on account of the strict supervision and the large number of employés at the railroad, for anybody to infringe these rules.

“In England the precautions are of a different character. Grade crossings, which are comparatively few in number, are protected by gates, which are closed across the railroad, except when they are closed across the highway and open for the passage of trains. At stations the platforms are elevated from thirty to thirty-six inches above the tracks, and there is no convenient way for the public to descend from the platforms to the track. Access from one platform to another is secured by an overhead bridge or subway. The public could, to be sure, get off the platform at the end; but there is no occasion for them to go to the end of the platform, since the exits from the station are near its center. The railroad companies have authority to pass by-laws for the government of the public while using the railroad, and subject to the approval of the Board of Trade, to impose penalties for trespassing. The uniform penalty of forty shillings for trespass has been adopted, but a requirement that personal warning shall be

given to offenders before arrest, interferes with the efficiency of the regulation."

Railroad accidents cannot be avoided, for in spite of the utmost care on the part of directors and superintendents, rails and axles will break, bridges will burn, and employes will make fatal mistakes; but there is no good reason why people should be permitted to invite destruction by walking, playing, or loitering upon the track, unless it be assumed that in a free country a person should be free to put his life in jeopardy whenever, wherever, and however he pleases. In some of the States there are mild laws prohibiting trespassing upon railroad property, but they are generally dead letters, and in New Hampshire we have no statutes other than those of a general nature upon the subject; but the time is ripe for an earnest effort to correct a popular habit which is the cause of nearly one third of all the fatalities upon our railroads, and of more than two-thirds of those that can be classed as preventable.

It is not to be expected that public opinion in this country would now tolerate the enforcement of such rigid railway police regulations as are in force in Germany or in the most of Great Britain, but the work of educating the public to a proper appreciation of the dangers incident to trespassing upon railroad property and the importance of preventing it should be begun, and restraining laws should be enacted as fast as they can be made effective. The Massachusetts board recommends the passage of laws covering these points, and the facts we have cited are eloquent in support of something similar here.

"1. Persons other than the officials or employes of a road should not be allowed on the tracks, embankments, bridges, or other railroad works, unless such persons have special permission therefor, or are with reasonable expedition crossing the railroad at a grade crossing, having entered thereon when the gates, if any, were open, and

when the flagmen, if any, was not giving a signal of danger.

"At stations, persons other than officials or employés should not be allowed to stand on the track or walk along the same, and should only be permitted to cross the track when necessary so to do, in order to get from a passenger platform to a train, or from a train to the nearest platform. Any person violating the foregoing provisions, and any person opening gates at public ways, or disturbing or climbing over the fences inclosing railroad locations, or passing by or under gates when they are closed, or passing by and disregarding a flagman when giving notice of danger, should be deemed guilty of trespass. The penalty should be a fine of small amount. Imprisonment in case of default in the payment of the fine should be brief. Provision should be made for summary arrest, without a warrant; but the offender, if able to give satisfactory proof of his identity, should immediately upon arrest have the privilege of giving a recognizance for his appearance in court, or simply an acknowledgment of service of summons.

"2. Trespassing on the tracks has now become so common, and the law imposing a penalty therefor has been so nearly a dead letter, that penalties for trespassing ought not to be enforced without giving the public the most ample notice. Warning-boards, calling attention to the statutes relating to trespassing, should be placed in prominent positions in stations, especially at the ends of station platforms, and also on the location of the railroad on each side of every grade crossing. The form of notice used on the Great Western Railway is as follows:

Trespass Notice.—All persons are warned not to trespass upon the railways or stations of the company, and notice is hereby given, that, pursuant to the provisions of the company's acts, every person who trespasses upon any such railway or station in such manner as to expose himself to danger, renders himself liable to a

penalty of forty shillings, and, in default of payment, to one month's imprisonment for every such offence.

“3. Some additional provision must be made for the enforcement of the law. The arrest of trespassers must not be left to railroad employes having other and inconsistent duties to perform. A gateman or a flagman, a station agent or baggage-master, cannot leave his position and neglect other duties to make an arrest. There should be a force of police specially assigned to this and other similar duties. A force appointed by and under the control of the railroads would be objectionable, because, among other reasons, the danger of retaliation would be increased.

“It is evident that it would not do to leave the enforcement of the law to municipal police, hampered as they would be by town and city lines. It seems, therefore, that, whatever arrangement is made for defraying the expense of the force, it should be a body of police appointed by and under the authority of the State, and responsible to it. A small force of active and judicious officers could practically put a stop to walking on the tracks. In no other way at an equal outlay can so many lives be saved in connection with the operation of our railroads, as by dealing intelligently and efficiently with the subject of trespassers.”

LEASES AND LITIGATION.

Of the thirty-two broad-gauge railroads for general use, making returns to this Board last year, but three, the Concord, Cheshire, and Boston & Maine, were, on the 1st of January last, operated by the corporations that constructed them; the others have been sold or leased. The Peterborough & Shirley is owned by the Fitchburg, the Nashua & Acton and North Weare by the Concord, the Manchester & Keene by the Concord and Boston &

Lowell, the Sullivan County by the Vermont Valley, and the Wolfeborough by the Eastern. The others are operated under leases which in many cases are virtual sales.

At the December law term, 1888, the several suits involving the validity of the lease of the Boston, Concord & Montreal to the Boston & Lowell, and the question of the forfeiture of that lease by reason of its alleged transfer to the Boston & Maine, which had been consolidated, and submitted by agreement of parties, were argued, and at the adjourned law term held March 15, 1889, the court decided those questions involved in the bill in equity against the Boston & Lowell Railroad, and held in substance: 1. That the Boston & Lowell Railroad was within the meaning of the Colby act of 1883, "operating" the Manchester & Keene Railroad in June, 1884, when the lease of the Boston, Concord & Montreal was taken, and therefore that the Boston & Lowell was qualified to take such a lease; 2. That, by the extension of the Boston, Concord & Montreal, resulting from its union with the White Mountain Railroad, it was one of the roads within the exception of the act of 1883, by which competing roads were authorized to lease or unite; 3. That railroads not physically connected were authorized to lease to, or unite with, each other under that act; 4. That the dissenting stockholders of the Boston, Concord & Montreal had, by their laches, lost their right to object to this lease.

The question of the forfeiture of this lease by its alleged transfer to the Boston & Maine Railroad without the lessor's consent was not determined at that time, but May 6 the court rendered a decision for the plaintiffs, and ordered the transfer of the property to them within thirty days.

The Portland & Ogdensburg has been leased for a long term of years to the Maine Central, and thus is delivered from the receivership decreed by the court when it went

into bankruptcy. The Kilkenny, which is only a lumber road, is operated this year by the Boston, Concord & Montreal.

To satisfy the many demands made upon this office for copies of the railroad leases now in force in this State they have been collected and are published in an appendix to this report.

EXPENSES AND INCOME.

The gross expenses, including taxes and rents, of the railroads reporting to this office, were, during the year ending September 30, 1887, eighteen million one hundred and seventy-three thousand five hundred and eighty dollars and fifty-nine cents, and their gross net income was four million seven hundred and fifty-five thousand and seventy dollars and sixty-six cents. For the year ending September 30, 1888, the receipts and expenses of the same corporations were as follows :

Passenger department	. \$10,497,256.02
Freight department . . . .	. 11,565,888.87
Rents for use of road . . . .	. 1,924,599.20
Other sources . . . . .	. 898,193.90
	<hr/> \$24,885,937.99
Operating expenses and	
taxes . . . . .	. \$16,963,503.52
Rents paid . . . . .	. 3,567,185.84
	<hr/> \$20,530,689.36
Net income . . . . .	. \$4,355,248.63

These comparisons, however, are of no value in ascertaining the expense and income in this State, as they include all corporations which operate any road or section of road in New Hampshire, and embrace several which secured large additions to their mileage last year by leasing and constructing roads in other States.

WORK OF THE BOARD.

There followed, as one of the results of discarding the competitive cure-all, the assertion of the right of the people, by specific legislative enactment or through the agency of a railroad commission clothed with almost autocratic powers, to control the railroads of the State, to fix maximum rates, to determine the number and character of trains, to compel the construction of new stations, sidings, and bridges, and the timely repair and improvement of road-beds and tracks, and to do whatever was necessary to protect the public from unjust exactions and secure to it reasonable railway facilities and accommodations. In some other States this right has been so vigorously exercised that it has worked a virtual confiscation of railroad property, and under the recent decisions of the United States courts it would seem that there is no legal obstacle to prevent the Board, and the state officials upon whom it may call to execute its decrees, from subjecting the owners of our roads to a similar punishment. Certain it is, that such a construction of our law as has been given the one in Iowa, would vest in this board the power to bankrupt every road in New Hampshire, and perhaps impose upon it the duty of managing every road while it was being bankrupted; but such was not the purpose of the framers of our statutes and is not the wish of our people. To keep railroad corporations within proper bounds, and compel them to do what is reasonable and for the best interests of stockholders as well as patrons, is all that is demanded by public opinion or authorized by that common sense which should interpret statute as well as constitutional law.

It is unquestionably the duty of this Board to see that the general laws of the State relating to railroads are complied with, and to exercise its discretionary powers, if need be, to compel corporations to put their roads in good

condition and keep them so; but beyond this it may, we believe, be taken for granted that when no complaint is made, railroads are discharging their duty to the public, and there is no occasion for interference with the details of their operation. Acting upon this theory, the bulk of the work of the commission is upon small matters, which, while they are important to individuals or to neighborhoods, are not of much consequence to the great mass of the people. Nearly a hundred land-damage cases have come before us during the year; petitions for sidings, platforms, cattle-passes, crossings, flag stations, and flagmen are received nearly every week. In most instances these are disposed of satisfactorily to the petitioners by a conference with the railroad authorities, who much prefer to grant such concessions without a hearing and formal order by the Board. No complaint that fares or freights are too high, or that train service is insufficient, has been received since our last report.

The annual inspection was made last fall, and it brought to our notice many serious defects in the upper roads which should be remedied at once, and which we should insist should be remedied if there was any corporation to which we could go and say, "This is your property, you are securely in possession of it, and you must put it in proper condition to do the business which the State has given you the privilege of doing."

All the fatal accidents have been investigated, and in recent cases in which there has been any doubt as to the facts stenographic reports of the testimony taken have been made, and are now on file and open to the inspection of parties interested. Previous to that, it was customary for representatives of the railroads upon which accidents have occurred to secure such reports at the expense of the corporation, but they were not accessible to the public, and this gave the roads a great advantage in cases in which suits were brought.

The findings and recommendations of the Board have been promptly acquiesced in and adopted by the roads, and there has been no failure or hesitancy in their furnishing us with information and otherwise assisting us in the discharge of our duties.

The incidental expenses of the Board, for accountant, postage, and express, were \$178.97.

COMMISSIONERS' CONFERENCE.

By invitation of the Interstate Commerce Commission, a conference of the railroad commissioners of the several States was held at the rooms of the Interstate Commerce Commission in Washington, on March 5, 6, and 7. This conference was attended by all the members of the Interstate Commerce Commission, together with their secretary, statistician, and auditor, forty state railroad commissioners representing twenty of the twenty-six States having railroad commissions, and fifteen members of the Association of Railway Accounting Officers. Commissioners Prescott and Mitchell were the members of this Board who were present.

The object of the conference was to consider the advisability and practicability of greater uniformity in the methods of supervision of railroad management, under the laws of the United States and those of the several States. The discussions in this meeting developed both the conspicuous absence and pressing necessity of uniformity in the general rules defining and limiting United States and State railroad supervision. This want of uniformity is due, of course, largely to the want of harmony in the legislation of the several States creating and defining the powers of their respective commissions.

Among the subjects discussed and considered at the meeting were the following :

1. Railway statistics, with special reference to the formation of a uniform system of reporting. 2. Classification of freight, its simplification and unification. 3. Railway legislation, how to obtain harmony in. 4. Railway construction, should legislation be provided? 5. Heating and lighting of cars, automatic couplers, continuous train-brakes, etc. 6. Railway taxation.

The propositions upon which definite action was taken were as follows :

1. June 30, of each year, was recommended as the day to which all annual reports should be brought down.

2. The system of reporting adopted by the Interstate Commerce Commission, with slight modifications, was recommended for adoption by the several state commissions.

3. Upon the subject of uniformity of classification, it was

Resolved, That we believe that a still further advance towards uniformity in classification of freight will promote the welfare and convenience of shippers and railroad companies, and we commend a further and consistent effort to that end.

4. A committee of five was selected by the conference, to report at the next meeting of the commissioners a general plan for securing greater harmony in the legislature of the several States in relation to the powers and duties of the commissions and the supervision and management of the railroads within their respective States.

5. In relation to the subject of a uniform system of heating and lighting cars, automatic couplers, continuous train-brakes, etc., the following preamble and resolution was adopted :

WHEREAS, Thousands of railroad employés are killed every year in coupling or uncoupling freight cars used in interstate traffic, and in handling the brakes on the same, and most of these accidents can be avoided by the use of uniform automatic couplers and train-brakes; and,

WHEREAS, The success and growth of the system of heating cars by steam from the locomotive or other single source largely depends on the adoption, in interstate traffic, of a uniform steam coupler; and,

WHEREAS, These subjects are believed to be of pressing importance and within the proper scope of the Congress of the United States, while attempts on the part of the individual States to deal with them have resulted and must continue to result in conflicting regulations;

Resolved, That we do respectfully and earnestly urge the Interstate Commerce Commission to consider what can be done to prevent the loss of life and limb in coupling and uncoupling freight cars used in interstate commerce, and in handling the brakes of such cars, and in what way the growth of the system of heating passenger cars from the locomotive, or other single source, can be promoted, to the end that said commission may make recommendations in the premises to the various railroads within its jurisdiction, and make such suggestions as to legislation on said subjects as may seem to it necessary or expedient.

It was voted to hereafter hold annual conferences, or meetings of a similar nature, and a committee of three was appointed to act in conjunction with Judge Cooley, chairman of the Interstate Commerce Commission, in fixing the time and place of the next meeting.

RAILROAD LAWS.

Since the passage of the General Laws in 1878, the railroad policy of the State has been radically changed, and in the attempt to amend the statutes to make them conform to this change, and to add to them such improvements as have been suggested by experience, they have been so pieced and patched that many of them are obscure, some are contradictory, and others are and must remain obsolete. They no longer inform people in plain terms what a railroad corporation may do and what it must refrain from doing, or instruct officials, whose duty it is to see that they are executed, how to discharge that

duty. There is great need that these statutes should be revised, so as to adapt them to existing conditions and make them explicit and intelligible, and unless the State is to this year enter upon the work of a general revision of all its statutes, which will include the railroad code, we suggest that provision be made for the appointment of a competent person to revise and codify our laws relating to railroads, and report to the next Legislature.

HENRY M. PUTNEY,
BENJ. F. PRESCOTT,
JOHN M. MITCHELL,

Railroad Commissioners of New Hampshire.

CONCORD, May, 1889.

PART II.

COMPLAINTS AND DECISIONS.

COMPLAINTS AND DECISIONS.

DEATH OF W. F. COWEN.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, May, 1888.

As the cattle train going south over the Boston, Concord & Montreal Railroad was passing through Aiken's bridge, a short distance below Wentworth station, at half past one o'clock, April 30, W. F. Cowen, the rear brakeman, attempted to pass down upon the ladder on the side of the saloon car and into the car. While he was upon the ladder the car reached the bridge, and he struck the lattice-work upon the side with such force as to knock him from the ladder, and he fell upon the floor timbers, receiving internal injuries of which he died the next day. He was seen to fall by the station agent and others, who rendered him all the assistance possible. These witnesses of the accident state that when he struck the bridge he was standing with his face towards Wentworth, and as the space between the side of the saloon car and the lattice was more than two feet, or sufficient for him to have passed through in safety had he clung close to the ladder, we judge that, although familiar with the road, he forgot the bridge, or supposed when he attempted to descend to the saloon car that he had ample time to do so before it would reach the bridge, and heedlessly swung himself out far enough to come in collision with it. We find no evidence that any other person contributed in any way to the accident or is in any degree responsible for it.

By the Board,

E. B. S. SANBORN, *Clerk.*

DEATH OF MRS. SYLVESTER EVANS.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, May 21, 1888.

A fatal accident occurred in Epping on the Concord & Portsmouth Railroad, on the 23d day of April, at about 11.30 o'clock A. M., at a highway crossing a mile or more below Epping Junction, which resulted in the instant death of Mrs. Sylvester Evans, of Epping. A train called the fuel or supply train, consisting of two platform and a saloon car, was at work upon the road distributing ties and loading wood to carry to Raymond. A load of wood had been put upon the cars below the East Epping station, and the train was backing towards the Epping station, in order to let a freight train from Portsmouth pass, and also the passenger train from Manchester, which reaches Epping about noon. The evidence was that the train was running from twelve to fifteen miles an hour. The engineer whistled at the usual point below the crossing, in the usual manner, and was constantly looking over the tender of his locomotive to see if anything was upon the track. Mrs. Evans was alone in an open wagon with one horse. Her home was the first house below the crossing, and but a few rods from it. There is a slight rise in the highway as it crosses the railroad, but nothing to obstruct the view of the track or the approach of a train for the distance of a mile. The engineer testified that he saw a wagon standing still ten or twelve rods from the track; that he saw her start and stop again. She then made the attempt to cross. The engineer whistled for brakes, and they were as soon as possible applied, but the train could not be stopped before reaching the crossing. The tender struck the wagon, completely demolishing it, and instantly killing Mrs. Evans by throwing her against a telegraph pole. The horse escaped uninjured. The train was brought to a stop a few rods from where the accident happened, between that and another crossing a few rods away. The fireman also testified that the whistle was sounded at the regular place, and that he commenced ringing the bell at the same time, and rang it up to and over the crossing. The conductor of the train, as he testified, was in the saloon car when the whistles sounded, and saw the brakemen setting up brakes when the signal for them to do it was given. He also testified that the train was

running at its usual speed. Albert S. Langley, of Epping, who was driving a butcher's cart, testified that he heard the whistle before he reached the crossing upon the Exeter road, and stopped his horse and looked to see if he had time to cross. He passed over and drove towards the other crossing where the accident occurred. He testified that she was three or four rods from the track when he first saw her, and also saw her drive upon the track, and saw the tender strike the wagon. He heard the bell ring, and thought the speed of the train was slackened. She was standing still. He saw her start and try to urge her horse across, and appeared to be looking down the track. The train was plainly in sight. Benjamin Pratt, who lives about five hundred feet from the accident, testified that he saw Mrs. Evans pass his house, and go towards this crossing; that she stopped before reaching this crossing, and handed an old man a small package; that he heard the whistles, and thought she stopped three or four rods before she reached the track; saw tender strike her, and also saw her hands going up and down, urging the horse along; knew of no reason why she could not have seen train, as thirty telegraph poles can be seen from that point down the track. She had lived there seven or eight years. She was a lame woman, and somewhat deaf. This accident occurred on a clear day, and at a point where a train can be seen for a long distance. The evidence was not at all conflicting. The train was running as usual, and the proper and customary signals were given. The men in the management of the train did all in their power to stop it, and it was no fault of theirs that the accident occurred, as appeared from the testimony of all the witnesses.

By the Board,

E. B. S. SANBORN, *Clerk.*

DEATH OF WILLIAM D. BURNHAM.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, June 4, 1888.

On the 25th day of May, 1888, a fatal accident occurred near the station in Concord, on the Concord Railroad. William D. Burnham, of Epping, an insane person, was being conveyed to the

asylum in Concord by Caleb F. Edgerly and George W. Tilton, selectmen of the town; when nearing the passenger station in Concord, Mr. Burnham rushed to the end of the car. Mr. Edgerly followed and seized hold of him after he had opened the door. In the effort to save Mr. Burnham both fell from the train and Mr. Burnham was instantly killed. Mr. Edgerly was badly wounded and was taken to the hospital in Concord. The accident happened at 10.30 A. M., while the train was in rapid motion. No blame can be attached to the corporation or any one connected with the management of the train.

By the Board,

E. B. S. SANBORN, *Clerk.*

PETITION OF NASHUA STREET RAILWAY.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, June, 1888.

The following petition was presented, to wit:

To the New Hampshire Railroad Commission :

The Nashua Street Railway, a corporation established by law and located in Nashua, in the county of Hillsborough in this State, represents that it is necessary for it to lay its tracks and run its cars, to accommodate the public, across the track of the Worcester, Nashua & Rochester Railroad Company in said Nashua, on Palm street, and also across the track of the Nashua, Acton & Boston Railroad, on Main street in said Nashua.

Wherefore, it prays that you license and give it authority so to do, and make such orders thereabouts as the law prescribes.

GEO. H. KNOWLES, *President.*

JOHN D. CHANDLER, *Clerk.*

Dated at Nashua, N. H., May 30, 1888.

Upon due notice a hearing upon said petition was had at the Concord Railroad station in said Nashua, on the 8th day of June, at 12 o'clock noon, at which hearing the petitioner and said Worcester, Nashua & Rochester and said Nashua, Acton & Boston railroad companies were represented; and after due hearing the following order was made by the Board, to wit:

Ordered, That the Nashua Street Railway be and hereby is permitted to cross at grade the tracks of the Worcester, Nashua & Rochester Railroad, on Palm street in Nashua, and the tracks of the Nashua, Acton & Boston Railroad, on Main street in Nashua.

By the Board,

E. B. S. SANBORN, *Clerk*.

DEATH OF MARGARET CAMPBELL.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, July, 1888.

Margaret B. Campbell, aged one year and a half, was killed near Tilton station, July 2, 1888, by shifting locomotive "Crawford." Mr. Adams, station agent at Tilton, with other employés, was backing the locomotive and pushing two cars ahead at a slow pace when the child was seen upon the track less than thirty feet in front of them. Brakeman A. D. Frost leaped from the train to drag the child from the track, but failed to catch, and the car struck and killed it. The child had evidently crawled through the fence and ran suddenly upon the track.

By the Board,

E. B. S. SANBORN, *Clerk*.

LAND DAMAGE CASES.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August, 1888.

The petitioners of the Upper Coos Railroad, Kilkenny Lumber Company Railway, Lake Shore Railroad, and Tilton & Belmont Railroad severally, for appraisal and award of land damages, were heard and report made to the supreme court as by law required.

A true record. Attest:

E. B. S. SANBORN, *Clerk*.

JONES & CO. vs. PORTLAND & OGDENSBURG RAILROAD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

AUGUST 1, 1888.

The petitioners seek an order from the Board to the Portland & Ogdensburg management requiring them to furnish proper side-track facilities for loading lumber near Frankenstein station.

At the hearing on the spot pointed out for the proposed siding July 31, it was shown that petitioners are operating a large timber lot on the mountain side west of the track, and their lumber can be shipped to market only over this railroad; that they expect to erect a mill for manufacturing lumber near the track, and it is not practicable or even possible to transact such business with only the main line upon which to load cars; that they cannot use the siding at Frankenstein station for loading two thirds of their product, because a deep gorge separates that siding from them, which can be bridged only at great expense, and that said Frankenstein siding is at best practically withheld from their use, because it is exclusively occupied by another lumber company, for whom it was made last year, and the approaches to it covered by the mill and yards of said lumber company. There is no other business at this point except that of the two lumber operations.

The petitioners offer to bear all the expense of putting in the siding. The railroad managers object to a siding for the reason that a new siding creates an additional danger to the public in operating the road, especially through the White Mountain Notch, where the average grade is one hundred and sixteen feet to the mile, and claim that although they built the Frankenstein station siding last year, about five hundred feet northerly of the site for the proposed new one, and upon the same grade, yet that said siding is near a station, and therefore more directly under the supervision of the station agent than the one asked for can be.

The petitioners disclaimed any desire for an order upon the railroad managers which should in the least detract from the condition of absolute safety to the public in operating the road which they seek to maintain, and to meet the objection that the proposed siding would lessen the security of trains, on account of the possibility of open switches, or runaway cars, the petitioners further offer to assume the expense of a switchman who shall be the employé of the railroad and wholly subject to its orders.

The final proposals of the petitioners were that the siding shall be put in by the railroad under the supervision of its roadmaster, and that a switchman shall be detailed by the railroad to take charge, and control the use of the siding, and all to be done and maintained at the expense of the petitioners, and without any cost to the railroad.

Upon the fulfillment of petitioners' offers, or security for their fulfillment, and basing the action of the railroad and the finding of this Board upon their offers, as conditions precedent for the accommodations sought by the petitioners, the Board recommends that the railroad management forthwith proceed to put in the siding asked for, particulars and details to be adjusted by agreement of parties.

By the Board,

E. B. S. SANBORN, *Clerk.*

DEATH OF CHARLES W. EASTMAN.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August 6, 1888.

A fatal accident occurred near the village of Exeter, on the western division of the Boston & Maine Railroad, on the 18th day of July, at about 5 o'clock in the afternoon, under the following circumstances: The locomotive "Rochester," No. 162, was running wild from Great Falls to Boston for the purpose of repairs. It was run by Samuel L. Richardson, of Lawrence, Mass. In approaching Exeter from the South Newmarket station, and about one mile distant from the Exeter station, there is a curve in the road. The testimony of Mr. Richardson was, that approaching this curve he sounded the long whistle to warn any section or road men of his coming. As soon as he rounded the curve, he saw, from one hundred to one hundred and fifty feet ahead, a man upon a horse-rake entering the line of the railroad. He sounded the danger whistle continually as he approached the farm crossing, but the person gave no heed whatever. He seemed to have a rein in each hand, and was driving slowly. The horse was struck by the locomotive, and the horse, rake, and driver were carried from eighty to ninety feet. As soon as the locomotive was stopped, it backed to the scene of the accident. Both driver and horse were dead. The

locomotive was running from twenty to twenty-five miles per hour. The person killed was Charles W. Eastman, a farmer who lived there, and who was crossing the track to go upon his own land. Every precaution was exercised by the engineer, and no blame can be attached to the corporation, as everything was done on its part to warn people of the approach of the locomotive.

By the Board,

E. B. S. SANBORN, *Clerk*.

DEATH OF JESSE P. BRADFORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August 7, 1888.

A fatal accident occurred on the White Mountains division of the Boston & Lowell Railroad, on the night of the 28th of July, at about 11.40 o'clock, near the station in Wentworth, which resulted in the supposed instant death of Jesse P. Bradford, of Woodsville, conductor of No. 10 freight train, then moving south. The mutilated remains were found on the track by William C. Howe, station agent at Wentworth, near the station, as he was returning home, and had occasion to be upon the track. Articles of clothing were also found scattered upon the track. Bradford was seen last near Wentworth, and was attending to his duties as usual. Mr. Bradford was an experienced employé of the road, and a competent, faithful man.

Much testimony was offered by the trainmen, but no one saw him fall from the train, and he was not missed until the train reached Rumney. His lantern was found upon a car loaded with bark, uninjured, but with light extinguished. A board on the end of the rack car, which was loaded with bark, was found split, and scratches on the next car, which appeared like the prints of a heel, were found. The supposition is, though there was no positive evidence to support it, that in passing upon the top of the train, from car to car, he stepped upon the board which was found broken, and fell between the cars. The train was running at its usual speed and nothing unusual occurred in its movement, as appeared from the testimony. No fault can be attached to the corporation.

By the Board,

E. B. S. SANBORN, *Clerk*.

DEATH OF SAMUEL BERGEON.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August, 1888.

August 11, 1888, Samuel Bergeon, freight brakeman upon the Cheshire Railroad, while at work with his train in the Keene yard, stepped in front of an approaching train, running backwards, and despite the shouts and warnings of the switchman was struck and fatally injured. No lack of vigilance or care of any employé is disclosed.

By the Board,

E. B. S. SANBORN, *Clerk.*

DEATH OF REV. C. H. WHEELER AND WIFE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August 13, 1888.

A fatal accident occurred on the Cheshire Railroad, near the State line station, on the 30th day of June, at about 1.55 o'clock in the afternoon. Rev. C. H. Wheeler and his wife, of Winchendon, Mass., were approaching the station in a covered buggy, with the sides of the buggy open. A freight train with thirty-five cars was also approaching the station. E. P. Clifford, the engineer, testified that he sounded the whistle at the proper station in the usual manner. The fireman testified to the same, and that he rang the bell. Mr. J. L. Gilson, the station agent, testified that he saw the team coming towards the crossing. He was upon the platform and waved his hand and shouted for the driver to stop. Mr. Wheeler was in a position to see the approaching train, and was seen by the engineer, who thought he was going to stop. Instead of stopping he urged on his horse. The horse crossed the track and was uninjured. The locomotive struck the carriage and carried it nearly seventy feet into a shed beside the track. Mr. Wheeler and his wife were

killed. All the evidence showed that every effort was made on the part of the employés of the road to prevent this fatal accident, but no heed whatever was given to their cautions. No blame can be attached to the corporation, as it used every effort to prevent it.

By the Board,

E. B. S. SANBORN, *Clerk*.

DEATH OF JOSEPH P. MANSUR.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August 20, 1888.

On the morning of Tuesday, July 31, at about 4 o'clock, Joseph P. Mansur, an employé on the Concord Railroad, was run over by a freight car in the yard at Concord, and killed. He was engaged in coupling freight cars. B. F. Fowler, a coupler in the same yard, testified that a hitch was to be made between a car standing in the yard and cars that were coming up the track. The cars were thrown up towards this car in the ordinary way and Mr. Mansur made the attempt to couple them. He failed to do so, and in some way not known fell between the cars. The force of concussion carried the car he was attempting to couple to the stationary one about half its length, and Mansur was found under this car, about in its center, between the rails with both legs badly crushed. He was at once carried to the hospital, where he died at about 2 o'clock P. M., August 1. Mr. Mansur had a lantern to enable him to see, as the morning was cloudy. The engineer, Albert F. Batchelder, of Concord, testified that he threw up six cars according to order in the ordinary manner, and stopped shifter until the cars went over the switch. No one saw Mansur fall and it is unknown how he fell under the car. He was a trusted employé of the road. As every movement of the train was done in a careful manner, no blame can be attached to the corporation or the men handling the train.

By the Board,

E. B. S. SANBORN, *Clerk*.

DEATH OF CHESTER M. SPRAGUE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, August 20, 1888.

Chester M. Sprague, a car-coupler in the yard of the Concord Railroad, was run over by several cars and killed at about half-past nine o'clock in the morning, on the 30th day of August, under the following circumstances: Freight cars were being moved in the yard; when last seen he was standing on the foot-board on the locomotive, which was then attached to several cars. He was on the forward end of the engine. He was soon missed by those handling the train and was found inside the rails on the same track the locomotive and cars had passed over. No one saw him fall from the foot-board where he was last seen standing. His body was badly mutilated and he died in about one half hour after the accident occurred. At the time of the accident it was raining fast. The train was handled with the same care as on other occasions and moving slowly. The only supposition is that Mr. Sprague in some way made a misstep which caused the accident. Four cars passed over him. He was performing his duties in his customary way and the cars were handled with care. There seems to have been no carelessness on the part of any one from the testimony given.

By the Board,

E. B. S. SANBORN, *Clerk.*

CAR HEATING.

The following notice was sent to all managers operating railroads in New Hampshire:

NEW HAMPSHIRE RAILROAD COMMISSION,

CONCORD, October 5, 1888.

DEAR SIR, — Your attention is directed to the law of this State relative to the heating of passenger cars, passed in 1887, which reads as follows:

AN ACT TO REGULATE THE HEATING OF PASSENGER CARS IN THE
STATE OF NEW HAMPSHIRE.

SECTION 1. No passenger, mail, or baggage car on any railroad in this State shall be heated, by any method of heating, or by any furnace or heater, unless such method or the use of such furnace or heater shall first have been approved in writing by the Board of Railroad Commissioners; *provided, however*, that in no event shall a common stove be allowed in any such car; *provided, also*, that any railroad corporation may, with the permission of said Board, make such experiments in heating their passenger cars as said Board may deem proper; *provided, also*, that the provisions of this act shall not apply to mixed trains or trains which consist of freight and passenger cars.

SECT. 2. Any railroad corporation violating any of the provisions of the preceding section shall forfeit a sum not exceeding five hundred dollars.

SECT. 3. This act shall take effect January 1, 1889.

[Approved October 28, 1887.]

Respectfully,

H. M. PUTNEY, *Chairman*.

The following request was presented to the Board, to wit :

BOSTON & MAINE RAILROAD, }
GENERAL MANAGER'S OFFICE, }
BOSTON, October 20, 1888. }

To the Honorable Board of Railroad Commissioners of New Hampshire :

GENTLEMEN, — Chapter 95 of the laws of the State of New Hampshire, passed at the general session of the Legislature in 1887, provides that no passenger, mail, or baggage car on any railroad within the State shall be heated by any method of heating, or by any furnace or heater, unless such method or the use of such furnace or heater shall first have been approved in writing by the Board of Commissioners; *provided, however*, that in no event shall a common stove be allowed in any such car. The Boston & Maine Railroad for itself and for other roads operated by it within the State of New Hampshire, to wit, the Eastern Railroad of New Hampshire, the Portsmouth, Great Falls & Conway Railroad, the Ports-

mouth & Dover Railroad, the Dover & Winnepesaukee Railroad, the Manchester & Lawrence Railroad, the Worcester, Nashua & Rochester Railroad, the Northern Railroad, the Concord & Claremont Railroad, the Peterborough Railroad, the Nashua & Lowell Railroad, the Wilton Railroad, and the Manchester & Keene Railroad, respectfully request the honorable Board of Railroad Commissioners to approve the use of the Baker car-heater and the Johnson car-heater, to be used in the cars of the passenger trains on the above-named roads.

Yours truly,

JAS. T. FURBER, *General Manager.*

The Board, having considered the foregoing request, granted it, and also granted similar requests from the Concord Railroad, the White Mountains division of the Boston & Lowell Railroad, the Cheshire Railroad, and the Grand Trunk Railway. Permission was also given the Cheshire Railroad to use the Spear heater temporarily in four passenger cars.

By the Board,

B. F. PRESCOTT, *Clerk.*

CITY OF CONCORD *vs.* CONCORD RAILROAD.

The city of Concord and the Concord Railroad Corporation mutually submit to the determination of the Board of Railroad Commissioners, the questions arising upon the facts involved in the following articles of submission :

The Concord Railroad Corporation and the city of Concord, the latter representing the public having occasion to use the highway hereinafter mentioned, mutually agree to refer to the Board of Railroad Commissioners of the State of New Hampshire the question whether said railroad corporation ought, under the circumstances of the case, to make any changes in or do anything further to the highway crossing the iron bridge recently erected by said corporation over its tracks near the gas-works in said Concord, by reason of raising said bridge and the approaches thereto when reconstructing it, and, if any, what changes they ought to make. This submission shall include all questions that would have come before said commissioners if they had been notified of the purpose of said corporation to raise said bridge and change the grade of

said highway at that point, and had given parties an opportunity to be heard therein before the rebuilding of said bridge, as provided in sect. 7, chap. 98 of the Laws of 1885, and all other questions growing out of the reconstruction of said bridge and the changes in said highway resulting therefrom. Said corporation is to do whatever said commissioners, or a majority of them, decide it ought to do (if anything), within a reasonable time after it is notified of their decision, and their said decision shall have the same effect to all intents and purposes that it would have had if rendered seasonably according to said statute provision. The intent of the parties hereby is to have a hearing and decision now as of a date anterior to the rebuilding of said bridge, that shall have the same effect and give the same authority to the Concord Railroad Corporation that would have resulted from a hearing and decision at such anterior date; and said parties hereby mutually agree to abide by and perform the award of said commissioners, made as aforesaid.

CITY OF CONCORD,

By J. E. ROBERTSON, *Mayor*.

CONCORD RAILROAD CORPORATION,

By CHASE & STREETER, *Attorneys*.

Under the foregoing submission, after due notice and hearing, the Board finds and awards as follows, to wit:

The highway bridge maintained by the Concord Railroad over its tracks near the gas-works in Concord having become unsuitable for public use, said Concord Railroad, on March 7, 1887, applied in writing to the board of mayor and aldermen of the city of Concord, for license and permission to close the approaches to said bridge and divert travel therefrom during the time occupied in its reconstruction.

On March 8, 1887, the mayor and aldermen granted the petition, subject to certain conditions and restrictions, providing for the convenience and safety of the public travel at that point during the time the approaches to the bridge were closed for such reconstruction. The bridge in existence at the time of the petition to the mayor and aldermen was an old wooden structure which was unsuitable for either the public travel over it or the railroad travel under it. The Concord Railroad replaced this old wooden bridge with a new iron bridge which is about twenty-five feet longer between the abutments, and eighteen feet high above the railroad track, this being three and one half feet higher than the old bridge. No notice to or written consent of the Board of Railroad Commis-

sioners to the proposed reconstruction, increased length and elevation, such as may be contemplated by section 7, chapter 98 of the Laws of 1885, was given or obtained by the Concord Railroad, but the city of Concord claims no advantage, even if one could be taken, from the omission to give such notice or the absence of such consent.

The effect of constructing the new bridge three and one half feet higher than the old one was to largely increase the grade of the approaches to it. After the construction of the new bridge the Concord Railroad regraded the approaches to it, but not to the satisfaction of the city.

The Concord Railroad, by its counsel, conceded that it was incumbent upon the corporation to so grade the approaches to the new bridge that they would be reasonably suitable for public travel and use, and have as good grade as was reasonably practicable, and it claimed that this it had done.

The city claimed that the grade of the approaches to the new bridge should be, on an average, no greater than those to the old one; that the road as left by the Concord Railroad, especially south of the bridge, was in an unsuitable condition and had an unreasonable grade; that by reason of the increased grade, incident to the change, teams could not haul as much toward the bridge from the south as formerly, the difference being from one fourth to one third less; that the Concord Railroad should fill and add grade, beginning at a point three hundred and fifty feet or more south of the bridge, and so distribute and equalize it as to render the grade more regular and less, and, therefore, access to the bridge easier and the road more suitable for the kind and amount of travel upon it.

The city, however, by its counsel and witnesses, admitted that for a distance of one hundred feet immediately south of the bridge the road was suitable and the grade satisfactory, the grade for a portion of the distance being eight feet and sixty one-hundredths per one hundred feet, and the complaint was limited to the condition of the road and character of the grade south of a point one hundred feet south of the southerly end of the bridge.

The Board, upon a full consideration of the claims, concessions, and admissions of the respective parties, the testimony of witnesses and arguments of counsel, find and award as follows:

That the highway, south of a point one hundred feet from the south end of the bridge, has not been put into a reasonably suitable condition by the Concord Railroad, and that a lighter grade is practicable, and awards that the Concord Railroad shall, within

a reasonable time, fill and grade south of said point, using such suitable material as is usually used by the city of Concord for similar filling and grading, and by such filling and grading shall so reduce the grade that it will at no point exceed eight feet per one hundred feet.

By the Board,

B. F. PRESCOTT, *Clerk.*

PETITION OF CHESHIRE RAILROAD.

The following petition of the Cheshire Railroad Company was presented to the Board, to wit:

To the Board of Railroad Commissioners for the State of New Hampshire:

The Cheshire Railroad Company respectfully represents that its tracks cross Main street, in the city of Keene, at grade; that its passenger station and water-tank are situated so near said crossing that in the ordinary running of certain of its passenger trains it is impossible to avoid a detention longer than two minutes; therefore it prays that your honorable Board will prescribe and establish such regulations and restrictions relating to the time of obstructing said street by placing or running cars or trains thereon, as in your judgment are proper, agreeably to the provisions of chapter 98, sect. 6, Laws of 1885.

CHESHIRE RAILROAD CO.,

By R. STEWART, *General Manager.*

KEENE, October 16, 1888.

After receiving the foregoing petition, public notice was given of a hearing in the newspapers of Keene. A hearing was had in accordance with such notice in the city hall building in Keene, on Tuesday, Nov. 13, 1888, at 8 o'clock in the forenoon. The corporation was heard, and all citizens who were present who desired to speak for or against the petition.

The Board, after hearing all parties interested, make the following report:

REPORT.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, Nov. 17, 1888.

The Cheshire Railroad having petitioned the Board for an extension of the time during which it was permitted to obstruct with its cars the Main-street crossing in Keene, and notice of a hearing upon said petition having been published in the newspapers printed at Keene, such hearing was had at the city clerk's office on Tuesday, November 13, at 8 o'clock A. M.

At that hearing another petition, signed by N. Guernsey and others, and praying that the Board would prescribe rules and regulations to prevent the switching of cars upon said crossing and also to prevent its obstruction by standing trains, was presented and used as a remonstrance against granting the prayer of the corporation. It appeared, however, that between the date of this remonstrance and the time of the hearing the road had, in the manner prescribed by law, applied to the mayor and aldermen of Keene and obtained permission to do switching over the crossing; and it was held that, even if this were not the case, the subject of switching was not properly before the Board. Inquiries were therefore restricted to the question of extending the time during which the crossing might be obstructed.

It was shown by the officers of the corporation that the passenger train from Boston which reaches Keene at about 11 o'clock P. M. is so long during the summer months, that when stopped at the west end of the station it extends through the east end and across the street, also that a few freight trains are so long that when moving out of the yard at the ordinary speed, which is about four miles per hour, it requires three or four minutes for them to cross Main street.

The Board finds no practicable way in which this can be prevented by a reasonable outlay of money, and it is therefore ordered that said Cheshire Railroad be permitted to obstruct the Main-street crossing in Keene with the passenger train west which reaches Keene at about 11 o'clock A. M. while making the stop at the station, and with freight trains in motion, not exceeding five minutes at any one time.

H. M. PUTNEY,
For the Board.

DEATH OF JAMES FITZGERALD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, Nov. 20, 1888.

A fatal accident occurred on the Eastern division of the Boston & Maine Railroad near the passenger station in Portsmouth, on the 29th day of October, under the following circumstances: At 11.30 o'clock in the forenoon, freight train No. 241 was moving through the station toward the east. An unknown person, who had been seen about the station and who was under the influence of liquor, made an attempt to board the train when it was in motion and failed in his first attempt; he tried a second time and was pulled between the cars. The wheels passed over his body and crushed it in a frightful manner. His death was instantaneous. The coroner of the city was near when the accident happened, but deemed an inquest unnecessary.

From some papers found upon him, it was supposed that his name was James Fitzgerald. His body was taken in charge by the city authorities of Portsmouth. The testimony of several witnesses, those in the employ of the road and others, was given and all to the same effect. He was evidently under the influence of liquor, and was endeavoring to secure a ride by attempting to board a freight train. No blame can be attached to the corporation or the employés who were handling the train.

B. F. PRESCOTT,

For the Board.

DEATH OF PATRICK MOONEY.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, November 27, 1888.

On the 19th of November a passenger train left the passenger station in Rochester at 4.44 o'clock in the afternoon, on the northern division of the Boston & Maine Railroad, bound for Dover. It was dark and foggy. The train was run as usual the entire dis-

tance. When the train reached the passenger station at Dover, the dead body of a man was discovered with his head wedged in between the cinder-valve and brace of the engine, with his feet and legs badly mutilated. An examination was made by the conductor, engineer, and other train hands, who found it to be Patrick Mooney, a section man on the Dover & Winnepesaukee Railroad. He lived about a mile from the Rochester station, near Gonic. He had finished his work for the day, as it had become dark early, and is supposed to have started for home, walking upon the track. This road and the Nashua & Rochester road, for quite a distance, run near to and parallel with each other. There was a train on the Nashua & Rochester road which was running about the same time with the passenger train on which Mooney's body was found. It is only a supposition, but it seems as though he might have been looking out for the train on the Nashua & Rochester road, and forgot the train on the road on which he was employed. He was a faithful man, had a large family, and had been in the employ of the road for about twenty years. His remains were cared for at Dover by the undertakers of that city, by direction of the officers of the road, and returned to Rochester for burial.

This is one of the many instances where accidents occur upon the road on which the persons injured have worked many years and seem to have become careless. No one saw the accident when it occurred, or knew that there had been one until the discovery at Dover.

H. M. PUTNEY,
For the Board.

DEATH OF W. A. BARNES.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, November 27, 1888.

W. A. Barnes, an employé of the Concord Railroad, was instantly killed while coupling cars in the Manchester yard, November 27, 1888. He had stepped between two sections of a train to make a hitch, and having some difficulty in getting the coupling-pin into its place, signaled the engineer to start up a little, which he did. A reverse of the engine soon after started the cars in the

opposite direction, though very slowly, and Barnes, in order to keep in position to adjust the pin, slid his right foot along the track until it was caught and held by a frog. An instant later the car-wheel just behind him rolled upon his imprisoned foot, and then over his leg and body, crushing him to death. Neither he nor any one else was guilty of carelessness or in any way at fault.

H. M. PUTNEY,
For the Board.

DEATH OF JOSEPH DESAUTELLE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 8, 1888.

At about two o'clock on the morning of November 30, as George H. Wilson was walking from Hooksett up the Concord Railroad back to his home in Suncook, he discovered between the rails the mangled and lifeless body of Joseph Desautelle, who had left Suncook early in the evening of the 29th, to return to Hooksett, where he was employed. It was evident that Desautelle had been run over by the cars, and as the passenger train up was the only one that passed over the road between the hours given above, the conclusion is, that that train was the cause of his death, although the engineer, who is a careful and reliable man, testified that he kept a sharp lookout in that vicinity, and saw no one upon the track, and neither the engine nor cars, when examined the next morning, furnished any evidence going to show that they had come in contact with the victim. From what can be learned of his character and condition when he left Suncook, and from the testimony in regard to the tracks along the road-bed, we judge that he either lay down to sleep between the rails, or was standing close by the road and stumbled under the cars as they went by, and we find no reason to blame any of the employés of the road for the fatality.

H. M. PUTNEY,
For the Board.

DEATH OF GEORGE H. COLBY.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 24, 1888.

On October 24, at 6.10 P. M., George H. Colby, of Concord, a brakeman on train No. 25, a mixed train from the Peterborough branch of the Northern Railroad system, was thrown, or fell, from the top of one of the freight cars of that train, a short distance south of the prison crossing, between West Concord and Concord. When found, which was but a few minutes later, he lay upon his back outside the track, feet towards rail, cap, gloves, and other clothing on and not disarranged; his watch was in his pocket, and running, but he was unconscious and breathing heavily. He was immediately removed to the City Hospital in Concord, and there remained in an unconscious state until 9.30 A. M., October 28, when he died. This train on which Mr. Colby was a brakeman, and from which he was thrown or fell, consisted of ten cars, including the passenger. Two of the freight cars were taken on at West Concord. It was due to leave West Concord for Concord at 6 o'clock P. M., and left on time. When the train left West Concord, Colby got upon the engine. He usually left the engine for top of the train near Flood's, north of the prison crossing, but this night he left it south of the crossing. When he left the tender he had his lantern and it was lighted, but on two curves north of where he was found, the conductor, who stood upon the platform of the passenger car, looked for Colby's light on the car, as usual, but saw it at neither point. A short distance north of the point where Colby was found the train broke apart, five cars remaining attached to the engine, and the other five continuing together. Very soon after the breaking apart of the train it was discovered, and the part attached to the engine stopped, and it being down grade at that point, the rear end followed and ran into the front part. When the two parts met it caused a severe jar, and broke the coupling between the engine and front car. Colby is supposed to have been thrown or fallen at or about the time the two parts of the train came together. His lantern was found near the brake on the running-board of the second or third car from engine; it was in perfect condition, but the light was extinguished. There were no external evidences of any injury upon Colby's person when found, except a slight scratch upon the forehead and a slight cut on the

back of his head. A physician who was a passenger on train No. 77, which followed the mixed train and but seventeen minutes behind it, reached Colby before his removal from the place where found, and describes his condition as being more indicative of apoplexy or contusion about the brain than resulting from either a shock or injury resulting from being thrown from the train. His position and appearance indicated that he rolled from the car, and at the time was unconscious, as there were no indications that he attempted to save himself. On this day he had complained of being much fatigued.

There was no evidence, and it could not be ascertained by this Board, whether the breaking apart of the train was due to a defective coupler, or to an imperfect or partial coupling, or the loss or a pin or link. Neither the conductor, car-inspector, nor any other person made inspection to ascertain this fact. Upon the evidence before us we do not find that the death of Mr. Colby is due to any carelessness or negligence on the part of any officer, agent, or employé of the corporation operating the road on which this train was running; but we suggest to this corporation and all others operating roads within this State, that in future reports of accidents, fatal or otherwise, arising from the coupling or uncoupling of freight cars, it is desired that the nature of the couplers be stated, and that the conductor or car-inspector, or both, if practicable, be required to ascertain and report to the superintendent, and by him to the Board, the cause of the uncoupling or breaking apart of the train; whether it is due to a defective coupler, or imperfect coupling, or loss of a link or pin, or what the real cause is.

JOHN M. MITCHELL,

For the Board.

AWARD TO FRANK B. LOVERING.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 24, 1888.

The commission and the selectmen of Colebrook, sitting as a joint board, have awarded to Frank B. Lovering, of that town, the sum of \$94, to be paid by the Upper Coös Railroad, for the grave-pit taken by said road to construct and keep in repair its track.

By the Board,

B. F. PRESCOTT, *Clerk.*

PETITION FOR STATION AT NORTH STRATFORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 24, 1888.

The following petition was presented to the Board :

We, the undersigned, citizens of North Stratford, Colebrook, and Stewartstown, hereby humbly petition the Railroad Commissioners of New Hampshire to intercede in our behalf with the Grand Trunk Railway of Canada for a new depot at North Stratford, the one we have being insufficient in many ways to meet the demands of our largely increasing trade. We think the Grand Trunk could afford us a much better one, inasmuch as the station pays more tribute to the same than any station between Montreal and Portland, with one or two exceptions. Hoping to hear a favorable report before many days,

We remain very truly,

C. E. MOSES,
and 22 others.

After due notice to the Grand Trunk Railway and the petitioners, a hearing was had at North Stratford with the following finding :

In the matter of the petition of C. E. Moses and other citizens of North Stratford, asking for better depot accommodations at the junction of the Grand Trunk and Upper Coös railroads in that village, a hearing was had December 19. At that hearing it was shown by the petitioners, and admitted by the representatives of the roads, that the present station, which was erected thirty-six years ago, is small, ill-arranged, dilapidated, and filthy, and in no respect calculated to afford the patrons of the roads at that point the accommodations to which they are entitled. It follows that a new, commodious, and well-appointed passenger station and a convenient and safe freight depot should be provided at the North Stratford junction as soon as practicable. To this the managers of the two roads also accede, and they agree to arrange among themselves the terms upon which such structures shall be erected and used jointly, and to push them to completion as rapidly as the season will permit. Under these circumstances a general recommendation that new stations be provided at North Stratford is satisfactory to the petitioners and is deemed sufficient.

By the Board,

B. F. PRESCOTT, *Clerk.*

DEATH OF MARTIN LYDON.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 24, 1888.

A fatal accident occurred at Gorham, on the Grand Trunk Railway, which resulted in the death of Martin Lydon, who lived in that town, at 6 o'clock P. M. on the 10th of December, 1888. No. 2 passenger train from Portland, Me., reached Gorham at that time. Lydon had once worked upon the road but was not employed at the time of the accident. He lived about one half mile from the station in Gorham towards Berlin. Evidence was introduced showing that Lydon had been about there during the day, that he had visited drinking saloons, and that he was seen to drink once if no more. He was on the platform of the station when the train started, and was seen to make an attempt to get on board a Pullman car in the train. He failed to do so, and in some way was swung round and fell, his feet and legs going over the rail. The rear trucks of the Pullman car ran over him, crushing his legs and hips. He was at once taken off the track by the men in the employ of the road and placed in the station, where he died in about an hour. Medical aid was at once summoned, but no relief could be given. There seems to be no doubt that Lydon was killed through his own carelessness. The supposition is, that he attempted to secure a ride a portion of the way to his home and then jump off, for he had been known to do that before.

B. F. PRESCOTT,
For the Board.

DEATH OF GUSTAVE RENE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, September 25, 1888.

About one o'clock on the morning of September 18, the dead and mangled body of Gustave Rene was found upon the track in the Concord Railroad yard, in Manchester, between the Granite-street crossing and the car-house. It had evidently been run over by a freight train that left for the north a short time before. From the little that can be learned regarding this case, it appears prob-

able that Rene, who spent the evening of September 17 at West Manchester, reached the Granite-street crossing on his way home just as the freight train was passing, attempted to get upon one of the moving cars to obtain a ride to the north end of the city where he resided, slipped, and fell under the wheels; but of this nothing can be known positively, as he was not seen alive after he left his friends on the west side of the river.

H. M. PUTNEY.

For the Board.

DEATH OF JAMES P. LANDERS.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 25, 1888.

On December 15, at 5.53 P. M., James P. Landers, of Concord, a brakeman on the Northern Railroad, while crossing the tracks in the Northern Railroad yard, north of the Free bridge, was fatally injured, and survived but a few minutes. It was dark when he met with the accident. No one witnessed the accident, or saw him upon the tracks until after he was injured. He was last seen, a few minutes before the accident, at a shoe-shop westerly of the tracks. He resided on Ferry street, and was on his way home, by way of the place of the accident, at the time. At the place of the accident there are four tracks running parallel, on one of which freight train No. 10 was being made up at the time, and on another, next to that and within a few feet, were several cars not in motion. In going to his home he would first reach the cars not in motion, and the testimony, location of his body, and the nature of the injuries indicated that in passing between the standing cars he stumbled and fell upon the next track, three feet easterly, on which the cars were in motion, or in the act of attempting to get upon the moving train he lost his hold and fell. His head was crushed, left shoulder-blade broken, and the lower jaw fractured. Whether the accident occurred in one way or another was not disclosed by the proof, and is mere speculation; but the evidence does not warrant a finding that it was due to either the carelessness and negligence of the corporation, its servants or agents, or even the carelessness of the deceased, unless going home by this way should be regarded as carelessness on his part.

By the Board,

B. F. PRESCOTT, *Clerk.*

HOOKSETT BRIDGE ACCIDENT.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January, 1889.

December 19, at 11 o'clock in the forenoon, the middle of the "Twin Bridges," over the Merrimack river, on the line of the Portsmouth branch of the Concord Railroad, north of Hooksett, being in process of reconstruction, the supports of the south span of the temporary structure in use gave way, in consequence of high water, a large accumulation of ice in the current at that point, and a carload of stone placed as a weight upon the bridge, and the bridge, losing its temporary supports and not resting upon the butments, fell into and was carried down the stream.

At the time this span of the temporary bridge went down there were several men upon it, some of whom were in the employ of the Concord Railroad. Silas Goodell, of Hooksett, Peter Burube and Eugene Theriault, both of Nashua, were drowned, and some of the others sustained more or less injury. The two men from Nashua were in the employ of a contractor, Mr. Stevens, of Nashua, who was doing stonework for the corporation. This temporary structure had been erected and was in use for the regular passenger and freight business of this part of the road for nearly two weeks prior to and until December 18, the day preceding the accident, when, soon after the passage of train No. 70, due at Suncook at 10.54 A. M., its use for passenger and freight cars was discontinued, and at the time of the accident, and for twenty-four hours preceding, it was not and had not been in use for public travel or transportation. Its use had thus been discontinued for public travel and business because the river was rapidly rising, and northerly of the bridge, upon the west bank of the river, there was lodged a large accumulation of ice which, it was feared, might be drawn into the current by the rising water and floated down the river against the horses or trestle supporting this temporary bridge, and those not being sufficiently strong or firmly set to resist such anticipated force and pressure they would yield and let the bridge into the river, thus endangering public travel and transportation.

As this accident resulted, not from the use of the railroad by the corporation in the performance and discharge of its public duties in the transportation of passengers and freight, but in the course of its repair or construction preparatory to such use, it was que-

ried whether this Board possessed the right or was under the obligation of investigating its causes and results, the law being that "the Board shall investigate the causes of any accident on a railroad resulting in the loss of life, and of any accident not so resulting which it may deem to require investigation;" but this Board resolved the doubt, if a doubt exists, upon the correct interpretation of the law in favor of the right and duty to investigate, and thus preserve in tangible form, accessible to the public, the corporation, and those, if any, having or believing they have private rights involved, the testimony taken by us and our report thereon. The corporation readily and without objection acquiesced in the determination of the Board to investigate, and at our request procured the attendance of all witnesses who could in any way lead to the discovery of the cause of the accident.

This temporary bridge was about 110 feet between the piers and did not rest upon both abutments. It was supported by horses or trestle standing in the river about twelve feet apart, braced with two and three-inch plank as low as the water, which varied from three to six feet from the base of the horses or trestle, at the time they were put in, and from four to seven feet at the time of the accident; there was no brace or support of any kind at the base of the horses or trestle, it being impracticable, as claimed by the superintendent of bridges, Mr. Patterson, and some of those who worked under him, to set them in or upon sills, in consequence of the irregular and uneven character of the river bottom at that point, or to brace them under the water without the aid of divers. There were, under the span carried away, eight horses or trestle set and braced as before described. Between 11 and 12 o'clock in the forenoon of the day preceding the accident, after the discontinuance of this temporary bridge for public travel, four carloads of stone were placed upon it to weight it down, by direction of Silas Goodell, the foreman under Mr. Patterson, the superintendent of bridges. Mr. Patterson, on hearing of this act, approved it and deemed it necessary and an effective means to hold the horses from being swept from under the bridge by the rising water and accumulating ice in the stream. On the morning of the day of the accident Mr. Patterson and those at work under him, on reaching the bridge, found that during the night six of the eight horses or trestle under the span which subsequently went down had gone from under it, leaving but two; and that the track had sagged under the weight of the stone cars on the open span about a foot on one side and twenty inches on the other. Mr. Patterson, after consulting with his foreman, decided that it was better to re-

lieve the bridge of the stone cars, but in its weakened condition it was deemed unsafe to remove them with a locomotive, as it could not stand the increased weight of the locomotive. Preparatory to strengthening it so it would be safe to remove them, even by hand, the men, by Mr. Patterson's direction, were placing under it a stick of timber, and while doing so the stonemen — those in the employ of Mr. Stevens — came to the bridge and wanted a carload of the stone for use, and Mr. Patterson gave directions to have the car upon this span pushed off by the men; and the men, by direction and with the aid of Mr. Patterson, were doing so, having moved the car about the length of itself, when a crack was heard, and instantly, without an opportunity or time for them, or any of them, to leave the bridge, this span gave way in consequence of the weight upon it and its weakened condition, and all upon it, including the superintendent and foreman, went down, with the consequences before stated.

In view of the result, it is very evident that at the time the carload of stone was ordered removed the bridge was in an unfit and unsafe condition to do such work upon it, and attempting the work was due to the misjudgment of Superintendent Patterson and those who concurred with him, in relation to the strength and capacity of the structure at that time. This was frankly conceded by Superintendent Patterson at the hearing before the Board. In the opinion of Superintendent Patterson, had the bridge not been weighted with the carloads of stone, it would have been carried away in the night, as were, as before related, a portion of the horses or trestle.

This accident strongly emphasizes what has always been apparent, that the Suncook Valley road should have been constructed down the east side of the Merrimack river, through the village of Hooksett, to a junction with the main line of the Concord road below the town bridge, on the line of its original location, and that it would be good policy for the corporation, and in every way conducive to public safety and confidence, to now move it to that route, thus avoiding the crossing of four bridges by all trains to and from Suncook, and securing an open road between Concord and Manchester on the east side of the river, in the event of the destruction or impairment of the Hooksett bridge by flood or fire. This would also result in giving to the people of Hooksett a more convenient and safer point for a depot, and would afford the corporation more yard room and greater facilities and convenience.

JOHN M. MITCHELL,

For the Board.

DEATH OF JAMES E. WILLIAMS.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January, 1889.

Near the southern end of the Concord Railroad yard in Concord are two switches, to which converge sidings on both sides of the main tracks. There is also at this point a signal. About four hundred feet further south is another switch on the west side of the main tracks, to which runs what is known as the engine-house siding. All these switches and the signal are in charge of a switchman, who is stationed in a switch-house near by, and is charged with setting the switches as there may be occasion, and of displaying the signal so as to inform trainmen which of the tracks they may safely use. About 1 o'clock on the afternoon of December 19 the switching-engine Governor Stearns left the engine-house, passed down the track to the upper switches, and crossed over to the west siding, where it set in a car. It then backed down the main track, and upon that to the gas-house, and thence to Bow Junction, a distance of about two miles, to take a can of oil to a signalman there. There were upon it at the time the following persons: Frank B. Flanders, engineer; Henry B. Hutchins, fireman; James A. Foley, yard conductor; James Blake, brakeman; Charles Maillard and Herman G. Lamb, couplers. After leaving the oil at Bow Junction the party started to return to the yard, and were about half way to that place, moving about ten miles per hour, when another locomotive was discovered by the engineer rushing down upon the same track at about the same speed. A very dense fog filled the Merrimack valley at the time, so that, while the engineers were upon a straight line, they were but a short distance apart when those upon them discovered their danger, and the next instant they had collided, killing one of the engineers outright, severely injuring a fireman, and wrecking the machines. The other men were either thrown or jumped to the ground without serious harm.

An investigation of this case, in which the Board was assisted by the officers and counsel of the road and the friends and attorneys of the family of the engineer who was killed, establishes beyond controversy the material facts and fixes the responsibility.

The down-going engine was the Titan, which had been sent from the Manchester yard to be repaired, and was being run back

to Manchester by Engineer James E. Williams and Fireman Edward W. Quimby. The switches and signal referred to above were that afternoon in charge of Wright C. Walker, who, when the Stearns backed out upon the main track, stood by the switch-house, and was told by Engineer Flanders that he was going to the gas-house. Within fifteen minutes the Titan came down the engine-house track, and the upper switches not being set to let her upon the main track, her bell was rung, calling Mr. Walker's attention, and he went and set them. As she passed him, Mr. Williams informed him that he was starting for Manchester, and Mr. Walker states that he said in reply, "The Stearns is at the gas-house." It is evident, however, that this remark was not heard by Williams or his fireman, for they ran down to the lower switch, and finding this set against them the fireman got off the engine, set the switch for the main track, and proceeded toward Manchester until the collision. All this time the signal was so set as to indicate that the down track was clear, because, as Mr. Walker admits, he forgot to set it so as to warn Williams and others that it was occupied, which he should have done. He testified that his reason for letting the Titan pass below the upper switches was because he knew the lower one was closed, and he supposed she would remain north of that until the Stearns returned and gave her the track to Manchester; but he also admits that while he saw the fireman of the Titan set the lower switch and let her out upon the main down track, and while he shouted to them a second time that the Stearns was at the gas-works, as soon as she passed out of sight he went about his business elsewhere and communicated his fears that there might be trouble to no one until he heard of the accident.

Superintendent Chamberlin testified to the reliability and excellent general reputation of Mr. Williams, and stated that when Williams saw the signal in the position it was, he had a right, under the rules and practice, to assume that the down track was open to him, although it would of course have been his duty, if he had heard Walker say the Stearns was at the gas-house, to have looked out for her. He stated further, however, that it was a mistake for the fireman to set the lower switch so as to let her upon the main line, as he should have waited until the switchman performed this service for him.

It appeared in the evidence that the yard and the men on duty in it are in charge of the yardmaster, H. Hamilton, who employs the men and has charge of them while at work, and he testified that he transferred Walker from a less responsible position to this one nearly a year ago, because he deemed him competent to fill it,

and that he had ever since found him a faithful and careful man. Walker's pay was \$1.70 per day, and he was on duty from noon until midnight.

The suggestion has been made that, as the Concord is a double-track road, the Stearns should have taken the east or up track when it returned from Bow Junction, but the testimony of all the railroad men on this point is to the effect that, having notified the switchman that they were using the down track, the yardmaster and engineer of the Stearns had a right to it as against all but regular trains, and that they had a right to assume, under the circumstances, that it furnished the safe way for their return trip.

We find that all the men upon both engines were in the discharge of their duty when the accident occurred, and that the collision, while primarily due to the fog that filled the locality at the time, was caused by the carelessness and neglect of Wright C. Walker, the switchman.

Even if it be admitted that Engineer Williams was at fault in permitting his fireman to open the lower switch, it is certain that had Walker done his duty no accident would have occurred, and a worthy and valuable man would have been saved to the community, to the road, and to his family.

This conclusion, taken in connection with several others very similar which have resulted from our investigation of the worst accidents that have occurred in this State during the three years last passed, suggests the inquiry whether our railroads would not practice a wise economy, and better discharge their obligations to their employes and to the public, if they employed in such responsible positions as that of a switchman in a large yard (and there are few in which mistakes cause greater loss of life and property) a better class of men, and required of them less service.

H. M. PUTNEY,

For the Board.

DEATH OF "OXFORD."

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January, 1889.

A fatal accident occurred on the White Mountains division of the Boston & Lowell Railroad, on the 24th day of December, 1888,

under the following circumstances : The locomotive Northumberland, with Isaac Glynn, engineer, and Wesley H. Irwin, fireman, was running wild from the Rum Hill side-track towards Woodsville. When it reached the second curve, about three quarters of a mile from the switch, a man was discovered by the fireman walking upon the track inside the rails, towards Woodsville. The bell was rung by the fireman, and the alarm whistle was sounded by the engineer, and every effort made to stop the locomotive. The curve at this point was sharp, and the man was not more than five or six rods from the locomotive when discovered. The engineer at the time was on the fireman's side fixing the engine, when the man was discovered. The person on the track did not look up or give any attention whatever when the whistle was sounded. His head was somewhat bowed over. The pilot struck and killed him instantly. The testimony given was to the effect that the locomotive was running from sixteen to eighteen miles an hour. The body was identified as being one "Oxford," an inmate of the Grafton county almshouse at Haverhill.

By the Board,

B. F. PRESCOTT, *Clerk.*

DEATH OF WILLARD C. WALKER.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January, 1889.

On the 17th day of January a fatal accident occurred at Nashua, on the Concord Railroad corporation, at 2.30 o'clock P. M., which resulted in the death of Mr. Willard C. Walker, employed as a yard conductor at the Nashua station. The accident happened on the Bridge-street crossing, north of the station, in the following manner : A shifter was near this point, and had five cars attached. Three of the cars were to be set on the iron of the Worcester, Nashua & Rochester road, just south of the above-named crossing. Mr. Walker gave directions to the engineer to back these cars so they could be pushed to the proper place. The engineer obeyed his order and commenced moving the cars in his usual manner. Mr. Walker made the attempt to uncouple the second from the third car. He put his right hand on the third car and attempted to pull the pin with his left, running along with the cars, which

were moving about five miles per hour, as all the witnesses testified. When he reached the Bridge-street crossing, his toe struck the end of the planking, and he fell between the cars. The wheels of the second car passed over his right foot, and his left foot and leg were badly crushed. The engineer was signaled to stop, which he did as soon as he could, but Mr. Walker was carried along over the crossing a distance of about sixty feet from where he fell. He had put his arm over the journal of the third car, and thus saved his head and shoulders from being crushed. When the cars were stopped he was fastened in in such a manner that jack-screws were necessary to release him from his confinement. He was carried to his home, where he died at about 10.30 o'clock in the evening. This attempt of Mr. Walker to uncouple cars when in motion was in violation of the verbal instructions of the corporation, and is a practice which is not sanctioned by the superintendent or station agent. It is very hazardous, and subjects all who attempt it to great and constant danger. Mr. Walker was a faithful employé of the road, and had charge of the shifting at Nashua, where he received his fatal injury.

B. F. PRESCOTT,

For the Board.

PETITION OF F. J. FULLER.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, February, 1889.

The following petition was presented, to the board :

To the Honorable Board of Railroad Commissioners for the State of New Hampshire :

Your petitioner respectfully represents that he has occasion to construct and maintain a branch railroad for his accommodation, in the town of Milford, from a point on the Wilton Railroad, at or near the line between the towns of Amherst and Milford, on his own land, to his granite quarry in said Milford, and it is necessary for said railroad to cross the highway leading from Nashua to Milford at a point at or near the line between the said towns of Amherst and Milford, and that it is not feasible to construct said branch railroad across said highway without having a crossing at

grade, except at great expense, and that the construction and maintenance of said branch railroad across said highway at grade will not unreasonably obstruct said highway or the public travel thereon. Wherefore the said petitioner requests you to authorize him to construct and maintain said branch railroad across said highway at grade.

F. J. FULLER.

A certified copy of the foregoing petition was presented to the selectmen of Milford, and they acknowledged service. A notice of the time and place of hearing was also published three weeks in the "Milford Advance." On Monday, February 25, 1889, the railroad commissioners, in company with the petitioner and his counsel and the selectmen of Milford, made examination of the point where said branch railroad will cross the highway, and heard all parties who desired to make any statements. The finding of the Board is as follows :

The Board grants the petitioner, F. J. Fuller, the right to construct the branch railroad across the highway named in his petition.

By the Board,

B. F. PRESCOTT, *Clerk*.

DEATH OF MRS. LOVINA SANBORN.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, March, 1889.

Mrs. Lovina Sanborn, an elderly lady, was killed upon the crossing just above the Tilton station on the Boston, Concord & Montreal Railroad, February 20, by the passenger train south which was due at that station at 9.30 A. M. The story of the accident, as told by John S. Sanborn, the husband of the victim, and William R. Kimball, the engineer of the train, is as follows: Mr. and Mrs. Sanborn were driving into Tilton, from their home several miles away, in a sleigh. The morning was cold and frosty. When the train reached a point about one hundred feet north of the railroad crossing, Mr. Sanborn became aware that his horse, which had been jogging slowly along, had become startled by something and was quickening his speed to a run, and looking diagonally across the stream, which parallels the highway at that place, to the rail-

road, he saw the train just entering the bridge across the stream, the locomotive being at that time about one hundred and eighty feet from the middle of the crossing. At almost the same instant the engineer saw that the horse was becoming unmanageable, reversed his engine and put on the brakes. Mr. Sanborn tried to check his horse or turn him into the gutter beside the road, but could not, and the locomotive and team reached the lower side of the crossing at the same instant. Mrs. Sanborn was struck upon the head and instantly killed; the horse was fatally hurt and the sleigh wrecked. Mr. Sanborn escaped uninjured. The train had begun to slow up before it reached the bridge, so as to come to a stop at the station, and when it went upon the crossing it was not moving more than six miles per hour. In his testimony Mr. Sanborn stated that he did not think a flagman upon the crossing could have prevented the accident, as his horse was badly frightened and uncontrollable, and it is not claimed that the engineer did not do all in his power, after he saw the team, to stop his locomotive. The controversy which developed during the investigation, in which both the road and Mr. Sanborn were represented by counsel, is as to whether the crossing whistle was sounded, as it should have been, above the bridge. Mr. Sanborn testifies that he heard no whistle, and others, including persons who were driving along the same road near by, those who were at work in a mill-yard close to the track when the engine should have whistled, and residents of the vicinity, who assert that for various reasons they were listening for the whistle, insist that it was not sounded at that point. On the other hand, the engineer, a passenger on the train, and others swear positively that it was sounded just below the mill-yard, or a few rods below the usual place, the engineer explaining that he postponed it for a few seconds in order not to frighten the teams at work in the yard. This discrepancy is perhaps due to the fact that there are three crossings in that vicinity at which a whistle is required, and at some of which it is admitted one was blown that morning, and that those who were listening were mistaken as to the point where the train was when they did or did not hear the warning. Be that as it may, the engineer is entitled to the benefit of the doubts in the case, and cannot be found guilty of a failure to do his duty upon the evidence before us, and we cannot see that any person was in any way at fault for the accident.

H. M. PUTNEY,
For the Board.

PETITIONS FOR STATIONS AT EPPING.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

In the matter of the petition of George Q. Dow and others, asking that the Worcester, Nashua & Rochester Railroad be required to establish and maintain a passenger and freight depot at North Epping, and of B. F. Hills and others for a flag station at the camp-ground crossing upon said road in Epping, a hearing was held at the places mentioned, April 15.

The points at which stations are asked for in these petitions are about a mile apart, the one at North Epping being about three miles from the one at Lee and the same distance from Epping Corner. It is claimed by the North Epping petitioners that a station at the camp-ground crossing will not convene them in the least, and by the others, that one at North Epping will in no way advantage them. They all admit that the road cannot be expected to establish depots at both places, and all are opposed to any unless it is located where they desire. There is now a side-track at the camp-ground crossing, and a milk station which offers all needed facilities for the shipment of freight, and during camp-meeting week passenger trains are stopped there to receive and deliver persons in attendance upon the camp-ground services. With this the ten or twelve families in the vicinity are fairly well satisfied, and they only ask in addition a cheap station at which all trains will stop when flagged. A flag station which is not in charge of an agent generally becomes a public nuisance, offensive to the senses and dangerous to the health of the community it is intended to convene, and a railroad signal which is left unlocked and unguarded, to be set by the general public, is frequently the agency by which mischievous boys, malicious tramps, and careless passengers cause the vexatious and unnecessary stoppage of trains and sometimes bring about serious accidents. It has not been judged wise by this Board to recommend such accommodations, and we must decline to do it in this case.

The North Epping petitioners ask for a passenger and freight station with suitable grounds, which can only be had there by considerable grading, and it being admitted that the road should not be asked to deliver or become responsible for freight at any point

where there is no agent to care for it, they demand further that a station agent shall be regularly employed. They show that the occupants of about fifteen farms are within easier reach of that point than any other station, that the guests of several summer boarding-houses would take and leave the train there, and that the shipments from a young nursery and a hennery would go from that point. There is no manufactory of any kind, and no water-power in the vicinity, and the country is very sparsely settled. To establish the station asked for, with the needed appointments, would cost several thousand dollars, and we see no reason for supposing that its entire receipts would be sufficient to pay a reliable agent.

These facts do not, in our judgment, give this petition a place among those that it is the duty of the Board to grant.

H. M. PUTNEY,
For the Board.

DEATH OF WILLIAM FRENCH.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

William French, an intoxicated man, attempted to get upon the forward platform of a car that was slowly moving up Kingsley street on the Nashua Street Railway on the evening of March 27. He stumbled behind the driver across the platform, and, catching hold of the railing, was swung off and fell upon the track in front of the car. The car was stopped before the wheels reached him, but the step of the forward end of the platform struck him, dislocating both of his collar-bones and his spine. He was taken to his home, where every effort was made to save him, but he died of his injuries the next morning. It was an accident which no one but the victim could have prevented.

H. M. PUTNEY,
For the Board.

DEATH OF JOHN CLIFFORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

On the 26th day of March, 1889, a fatal accident occurred in the yard at Manchester, under the following circumstances: John Clifford, a coupler in the employ of the Concord Railroad, was on the top of a box-car while it was being hauled from the freight-house at about 11.15 o'clock P. M. From the evidence it would seem that he was attempting to reach the brake in order to control the train. When he passed under the arch in the freight-house, he was on the edge of the car and hit the arch overhead. He was thrown off, and fell between the car he was on and a platform car which was attached to it. The platform car ran over him, and he was carried several feet from where he fell. The train was moving slowly. Alarm was given, and the car was stopped within two cars' length of where he fell. His left leg and right arm were badly crushed. Medical assistance was at once summoned, but his injuries were so serious that he survived but a short time. Clifford was a steady man, and had been in the employ of the road but a short time. He was about twenty-five years of age. Fred Coty, a pin-puller in the yard, was on the platform car and heard his lantern break and saw Clifford fall, and gave the alarm for the train to stop. No one else saw the accident.

B. F. PRESCOTT,

For the Board.

DEATH OF SMITH S. DOCKHAM.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

On February 18, 1889, Smith S. Dockham, who was a car-inspector and workman in the yard and repair shops at Lake Village, was run over and killed in the yard by a shifting train consisting of an engine, with a platform car in front and one passenger car in the rear of the engine. This train started from what is called the freight depot, about 650 feet north of the Lake Village crossing,

and east of the track. The platform car was to be put into the shop for repairs, and the passenger car placed upon the "long" side-track. The train made what is called a "double switch;" that is, ran down the side-track upon the east side of the main track, across the main track and up on the long side-track upon the west of the main track. About the time this train passed from the east side-track to the main track, Mr. Dockham came from the paint shop, east of the track, passed the main track and was walking upon the long side-track, in the same direction in which the shifting train was running, and was overtaken, struck by the forward end of the platform car, run over and killed.

The evidence tended to show that as the train approached Dockham, and when within one hundred and fifty-four feet of him, the engine whistle blew and a danger signal was given; and as Dockham still continued upon the track, either not hearing or not heeding the signal, the engineer, when within forty feet of him reversed his engine, but was unable to stop the train until he had run one hundred and four feet beyond where Dockham was struck.

The evidence indicated that the train was running at the rate of seven or eight miles an hour at the time of the accident. There was no brakeman on either the platform or passenger car, nor were there at the time any brakes in use upon the engine. It was snowing at the time, and the track was in a slippery condition. Whether the deceased failed to hear the whistle, or supposed the train was approaching upon the main track, and that the switch was not set for the long side-track upon which he was walking, is a matter of simple conjecture; the evidence presented to the Board does not warrant a finding upon this point. The evidence showed that Mr. Dockham was a faithful, intelligent servant, who had been in the employ of the present managers of the Boston, Concord & Montreal Railroad and their predecessors, at Lake Village, for nearly twenty-five years. There was evidence that the eyesight of the engineer in charge of the train was imperfect; but the engineer testified that he could see Dockham perfectly from the time he first left the paint shop, and that he reversed his engine as soon as he became satisfied that Dockham either did not hear the whistle, or, if he heard it, had disregarded it.

From the evidence thus far presented to the Board, it appears more probable that the accident was due to Mr. Dockham's misapprehension as to which track the train was approaching upon than to the carelessness or negligence of any one.

JOHN M. MITCHELL,

For the Board.

DEATH OF LEON LARRY.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

Leon Larry was fatally injured near Rochester station, on the Northern division of the Boston & Maine Railroad, on the 4th of April, 1889, at 7.25 o'clock A. M., by train No. 54, engine No. 8. Mr. Larry was a Frenchman, and was walking on the track from the main station in Rochester to the village and station known as Gonic. The evidence in the case showed that Larry was very deaf. When the train reached what is known as Berry's crossing, the ordinary signal was given by the engineer, two long and two short blasts. Mr. Larry was discovered by the engineer beyond the crossing, and the danger signal was sounded and repeated. Mr. Larry gave no attention to it. The engineer at once reversed the steam and applied the brakes, but he could not stop the train before the locomotive hit Mr. Larry and knocked him down. The wheels passed over his left arm and completely crushed it nearly to the shoulder, and a bad cut was made under the chin. He was taken up, placed in the baggage car, and the train backed to the Rochester station. Medical aid was at once summoned by the railroad corporation, and every attention was shown him. The physician decided that an amputation of the arm was necessary, and it was done. He died the next day from the loss of blood and the shock of the accident. He had no right to be walking upon the track; the employes of the corporation did everything in their power to prevent the accident, as appeared from the evidence given, and did everything to save the life of the unfortunate man and care for him after the accident occurred. From all the testimony in the case the fault seems to lie with Mr. Larry, and not with the corporation.

B. F. PRESCOTT,
For the Board.

DEATH OF FRANK BLAUPIE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April 22, 1889.

A fatal accident occurred on the White Mountains division of the Boston & Lowell Railroad on the 11th day of March, 1889, at 7 o'clock P. M., near Scott's Station, in which Frank Blaupie, of Copleston, Canada, was killed. Blaupie was not in the immediate employment of the railroad, but was hired by William H. Coombs, foreman of the pile-driver at Scott's Station, and had been at work for him on the day of the accident. Coombs had expressly forbidden all of his employes coupling or meddling with cars or running of trains, as it was outside of the work he had hired them to do. Blaupie, notwithstanding the cautions which had been given them, gave but little attention to them. At about half-past 6 o'clock Blaupie was about the locomotive Lyndeborough, which was at that time at Scott's Station, getting upon it and then jumping off. The locomotive then went to Whitefield with tank car to get water for one engine and also the engine that ran pile-driver. The tanks were filled with water and ran back to Scott's Station. Blaupie got off and set the switch to let the locomotive and car on a side-track, and remained at the switch until locomotive and car had got in. He then set the switch back upon the main track. Cars were then coupled together. The fireman attempted to make the coupling, but Blaupie ran by him and said he would do it. He was cautioned by the fireman not to do it, and he replied, "Never mind for me," and by that time he was caught. He never spoke afterwards, only groaned when he was struck. When the train started ahead Blaupie fell out, face downward, on the snow. This accident was the result of carelessness in attempting to perform work outside of regular duty and in violation of rules and instructions.

B. F. PRESCOTT,

For the Board.

PETITION FOR FLAGMAN AT WEST CONCORD.

Abijah Holden and sixty-nine other citizens of Concord, having petitioned the Board to order a flagman at the prison crossing upon the Northern Railroad in that city, a hearing was appointed, and the parties notified; but before the time designated the road stationed a flagman at the crossing, and no further proceedings were had upon the petition.

SUNCOOK VALLEY EXTENSION LAND DAMAGES.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, April, 1889.

The petition of the Suncook Valley Extension Railroad for appraisal and award of land damages was heard, and report made to the supreme court as by law required.

A true record. Attest:

B. F. PRESCOTT, *Clerk*.

PETITION OF THE MANCHESTER HORSE RAILROAD.

To the Honorable Board of Railroad Commissioners :

Respectfully represents the Manchester Horse Railroad, a corporation duly established by law and doing business in Manchester in the county of Hillsborough, that for the proper and convenient transaction of its business and the accommodation of the public, it becomes necessary that the tracks of said corporation shall cross the tracks of the Concord Railroad, a corporation duly established by law, and also doing business in Manchester aforesaid, upon or at the foot of Bridge street, so called, in said Manchester, said tracks of the Manchester Horse Railroad being duly laid out in and through said street, according to law, by the board of mayor and aldermen of the city of Manchester. Said Manchester Horse Railroad, therefore, requests your honorable Board to give your consent that its said tracks may cross the tracks of the said Concord

Railroad at said place at grade, and to establish said crossing at grade in accordance with the statutes of the State of New Hampshire in such cases made and provided.

MANCHESTER HORSE RAILROAD,

By FREDERICK SMYTH,
JOSIAH CARPENTER,
FREEMAN HIGGINS,
Directors.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, May 2, 1889.

Section 5 of chapter 98 of the Session Laws of 1885 is as follows :

“No railroad shall be constructed across another railroad at grade without the consent of the board of railroad commissioners.”

In the fall of 1887, the Manchester Horse Railroad extended its tracks from the Bridge-street junction on Elm street down Bridge street, across the Concord Railroad, over the McGregor bridge to the settlement known as McGregorville, on the west side of the Merrimack river, and has since run its cars regularly on this extension.

A petition signed by the officers of the corporation, and asking for the consent of the commission to the grade crossing over the Concord road, having been received, a hearing was advertised in the city papers, and held April 25.

No citizen of Manchester appeared in a private capacity to either favor or oppose the prayer of the petitioners, who rested their case upon the proposition that if they were to continue to operate the extension they wished to do it legally. Representatives of the Concord Railroad objected upon the ground that the crossing is a very dangerous one, and that the benefit to the public by this extension is not sufficient to warrant the risk involved. It was admitted, however, that the Concord road had never before objected to the crossing or made any attempt to have it abolished.

Cross-examination of witnesses revealed the fact that the average daily number of passengers carried on this extension is 110, the receipts being \$5.50, while the operating expenses are about \$8, and the wear and tear \$2 more. The crossing in question is a very dangerous one and cannot be made otherwise. It is situ-

ated on a steep sidehill, the grade being more than five feet in a hundred. It is a blind crossing, the brick buildings upon either side of Bridge street being so placed that a person going down the hill cannot see the Concord road until he is within less than two hundred feet of it. It includes not only the main tracks of the Concord road, but the side-track leading through the Stark mill-yard to the mills above. It is a point where the trains upon the steam railway run very rapidly. If from any cause a loaded horse-car should become unmanageable upon the hill between Canal and Elm streets and dash down in front of one of the many trains upon the Concord road, no human power could prevent a catastrophe of appalling magnitude, and that this is liable to happen at any time, the experience upon Granite street, where the decline is much more gradual, and where within a few months four horse-cars have left the track and rushed down the hill and into the side of the depot curbing, is proof enough.

The Elm-street junction, from which this branch starts, is upon the brow of the hill, and so situated that while the cars are detached from the horses, as they are at the end of every trip, a gust of wind is liable to send them down the hill and upon this crossing, all of which adds to the dangers incident to all grade crossings. There was never, so far as we can learn, any public demand for this extension, and as the result has shown, there has not been and is not sufficient business upon it to support it and justify its construction, even if it were as safe as ordinary roads. If it were necessary and proper to give the residents of McGregorville horse-car connection with the city east of the river, it should have been done by laying the track from the intersection of Bridge and Amory streets southerly to a junction with the Piscataquog line, near Clapp's store on Main street, where passengers could be transferred and taken to Elm street over the Granite bridge as easily and with much less danger than they are now carried north and east *via* Bridge street. Such a branch could be operated more cheaply than the one over the McGregor bridge, and would serve more people, as it would run the entire length of McGregorville. Only twelve hundred feet of track are lacking to carry the the road now built to the junction mentioned near Clapp's store.

It is the universal opinion of progressive railroad men, and of all others whose judgment is entitled to be considered, that the abolition of grade crossings, especially in cities and large towns, is one of the most pressing duties of the times, and in order to accomplish this our most important railroads are annually expending millions of dollars, and the Legislatures of our most progressive States are constantly en-

couraging and even compelling an extension of the work. Meantime it is obviously against public policy to permit new grade crossings where there is not a great public necessity which cannot be met in any other way, hence our statute upon the subject.

If we were asked to authorize and approve a crossing like the one on Bridge street, that had not already been established, we should have no hesitancy in refusing to do it. The risk is too great; the public benefit to be secured is too small. And we would, if we could, abolish this crossing now, and transfer the track on either side of it on Bridge street to some section where it would serve more people with much less hazard.

But this opinion is in the main gratuitous, and is given because a discussion of the case at the hearing and elsewhere has proceeded upon the assumption that the main question upon which we are called to pass is as to the discontinuance of the McGregorville branch. Ordering or authorizing the discontinuance of this crossing, or any other part of the petitioners' road, is not within our province. The power to do that rests alone with the Legislature of the State.

The law quoted above contemplates application to the Board, and their written consent, prior to the construction of one railroad across another at grade. It is in the nature of a prerequisite license, authorizing the construction of one railroad across another. The unmistakable intention of the Legislature was to protect the public by preventing the construction of dangerous crossings, that is, authorizing and requiring the commissioners to hear and determine the question whether or not the public safety and public interests would justify the construction and subsequent use of such grade crossings. But over existing grade crossings the commission has no jurisdiction beyond the power to regulate their use. The power to discontinue the use of the road at either side of the crossing belongs to the Legislature and not to this commission. When the crossing at grade had been constructed by one railroad over another without the commissioners' consent, the object of the law had been defeated.

In our view the authority to permit the construction of a railroad grade crossing is limited to action preceding the construction of the crossing. There is no express or implied authority given the commissioners to ratify the unauthorized construction of such a crossing. After its construction the obligations and liabilities of the corporation are the same as though the commission had consented previous to the construction; the legal difference is the additional liability of the corporation to answer for an unauthorized

act, or for the construction of a crossing in violation of law. This application is made to the commission, not only after the construction of the crossing, but also eighteen months after this part of the road was put into operation by the corporation; the petition is therefore dismissed.

By the Board,

B. F. PRESCOTT, *Clerk.*

PART III.

RAILROAD RETURNS.

REPORT

OF THE

ASHUELOT RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$23,934.43
Total expense (including taxes)	2,873.18
Net income	21,061.25
Interest accrued during year:	70.63
On unfunded debt \$70.63	
Dividends declared (10 per cent)	21,000.00
Balance for year (deficit)	9.38
Balance at commencement of year \$42,661.55	
Balance at commencement of year as so changed .	42,661.55
Balance September 30, 1888 (surplus)	42,652.17
ANALYSIS OF EARNINGS.	
Rents for use of road	\$20,937.63
Income from all other sources, viz.:	2,996.80
Interest on permanent improvement . \$2,302.71	
Interest on contingent fund 600.00	
Interest on current account 94.09	
Total income from all sources	\$23,934.43
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$550.00
Contingencies and miscellaneous	22.80
Total operating expenses	\$572.80
Taxes, state	2,190.73
Taxes, local	109.65
Total operating expenses and taxes	\$2,873.18

PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Land, land damages, and fences	\$400.00
Total for construction	400.00
Total charges to property accounts	400.00
Net addition to property accounts for the year .	400.00

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.	
Cost of road	\$238,756.25
Total permanent investments	\$238,756.25
Due from agents and companies	\$4,445.92
Sinking fund	10,000.00
Total cash assets	14,445.92
Total assets (as per books of the company) .	\$253,202.17

LIABILITIES.	
Capital stock	\$210,000.00
Unfunded debt, viz.:	550.00
Vouchers and accounts	\$550.00
Profit and loss balance	42,652.17
Total liabilities (as per books of the company)	\$253,202.17

DESCRIPTION OF ROAD.	
Main line of road from S. Vernon, Vt., to Keene, N. H.	24.0000 miles.
“ “ in New Hampshire	23.2142 “
“ “ in Vermont . . . . .	.7100 mile.
“ “ in Massachusetts . . . . .	.0757 “
Total road belonging to this company	24.0000 miles.
Sidings and other tracks not above enumerated	4.9703 “
Same in New Hampshire	4.6686 “
Total length of track computed as single track	28.9703 “
Same in New Hampshire	27.8828 “
Total length of steel rails in tracks, not including steel-top rails	23.0227 “
[Weight per yard, 56 lbs.]	
Total miles of road operated by this company	24.0000 “
Total miles of road operated by this company in New Hampshire	23.2142 “

Number of stations in New Hampshire on all roads operated by this company	6
Number of stations on all roads owned by this company	7
Same in New Hampshire	6

BRIDGES.

Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 75 ft.	
Number of spans of iron bridges of 25 feet and upwards*	4
Number of spans of timber bridges of 25 feet and upwards*	1
Aggregate length of same for single track 700 ft.	
Number of crossings of highways at grade*	21
“ “ “ over railroad	1
“ “ “ under “	1
Number of highway bridges 18 feet above track	1
Number of crossings at which there are neither signals nor flagmen*	21

CAPITAL STOCK.

Capital stock authorized by charter	\$500,000
Capital stock authorized by votes of company	210,000
Capital stock issued (number of shares, 2,100); amount paid in	\$210,000.00
Total amount paid (as per books of the company)	210,000.00

NAMES AND RESIDENCES OF OFFICERS.

A. B. Harris, *President*, Springfield, Mass.; W. H. Wilson, *Auditor*, Springfield, Mass.; J. Mulligan, *Superintendent*, Springfield, Mass.; H. E. Howard, *General Freight Agent*, Springfield, Mass.; E. C. Watson, *General Ticket Agent*, Springfield, Mass.; E. F. Lane, *Treasurer*, Keene, N. H.; E. F. Lane, *Clerk of Corporation*, Keene, N. H.

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

A. B. Harris, Springfield, Mass.; Oscar Edwards, Northampton, Mass.; J. Mulligan, Springfield, Mass.; W. H. Haile, Springfield, Mass.; George E. Frink, Springfield, Mass.; N. A. Leonard, Springfield, Mass.; E. F. Lane, Keene, N. H.

PROPER ADDRESS OF THE COMPANY:

THE ASHUELOT RAILROAD COMPANY.

SPRINGFIELD, HAMPDEN CO., MASS.

A. B. HARRIS,
President.

J. MULLIGAN,
N. A. LEONARD,
GEORGE E. FRINK,
Directors.

E. F. LANE,
Treasurer.

J. MULLIGAN,
Superintendent.

STATE OF NEW HAMPSHIRE.

CHESHIRE, ss. February 4, 1889. Then personally appeared E. F. Lane and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

J. N. NEAL, *Notary Public.*

COMMONWEALTH OF MASSACHUSETTS.

HAMPDEN, ss. SPRINGFIELD, January 29, 1889. Then personally appeared J. Mulligan, N. A. Leonard, and George E. Frink and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

WILLIAM F. CALLENDER, *Notary Public.*

STATE OF NEW YORK.

JANUARY 14, 1889. Then personally appeared A. B. Harris and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JAMES C. GATES, *Notary Public.*

REPORT

OF THE

ATLANTIC AND ST. LAWRENCE RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$273,648.40
Total expense (including taxes)	272,119.80
Net income	1,528.60
Interest accrued during year:	167,390.40
Proportion for New Hampshire of rental paid by lessees as guaran- teed interest on stock and bonds, } \$480,644.00	
Balance for the year (debit)	165,861.80
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$32,041.17
From through passengers (to and from other roads over and beyond this road)	30,175.88
From express and extra baggage	4,485.54
From mails	6,589.22
Total earnings from passenger department	73,291.81
From local freight (all freight starting from or stopping at any station on this road)*	72,474.49
From through freight (to and from other roads over and beyond this road)	127,009.55
Total earnings from freight department	199,484.04
Total transportation earnings	272,775.85
Income from all other sources, viz.:	872.55
Sundry rents for use of company's property, \$872.55	
Total income from all sources	\$273,648.40

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks . . .	\$4,559.25
Legal expenses	1,410.50
Insurance	2,465.53
Stationery and printing	170.00
Outside agencies and advertising	3,986.95
Contingencies and miscellaneous	939.07
Repairs of bridges (including culverts and cattle- guards)	4,960.29
Repairs of buildings	4,812.09
Repairs of fences, road-crossings, and signs	2,790.05
Renewal of ties	7,521.30
[No. laid, 25,071.]	
Repairs of road-bed and track	28,877.38
Repairs of locomotives	21,338.48
Fuel for locomotives	42,592.72
Water supply	1,601.76
Oil and waste	1,576.23
Locomotive service*	29,519.82
Repairs of passenger cars	7,804.04
Passenger-train service*	3,044.98
Passenger-train supplies	551.54
Repairs of freight cars	20,411.62
Freight-train service*	11,359.19
Freight-train supplies	872.92
Mileage freight cars †	4,143.48
Telegraph expenses	4,752.65
Loss and damage, freight and baggage	170.91
Loss and damage, property and cattle	2,850.25
Agents' and station service*	42,350.00
Station supplies	6,239.09
Total operating expenses	\$263,672.09
Taxes, state	8,072.13
Taxes, local	375.58
Total operating expenses and taxes	\$272,119.80
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$2,873,031
Total permanent investments	\$2,873,031.00

* Salaries and wages. † Debit balances.

LIABILITIES.	
Capital stock, \$5,484,000 — proportion for New Hampshire	\$1,913,916.00
Funded debt, \$2,521,000 — proportion for New Hampshire	959,115.00
Total liabilities (as per books of the company)	\$2,873,031.00
MILEAGE, TRAFFIC, ETC.	
Passenger-train mileage	102,544
Freight-train mileage	195,356
Total revenue train mileage	297,900
Switching-train mileage (not treated as train miles) 64,355	
Other train mileage	11,915
Total train mileage	309,815
Number of season-ticket passengers * 1,800	
Number of local passengers (including season)	62,503
Number of through passengers (to and from other roads going over and beyond this road)	28,044
Total number of passengers carried	90,547
Local passenger mileage (local passengers carried one mile)	880,255
Through passenger mileage (through passengers carried one mile)	1,326,179
Total passenger mileage	2,206,434
Number tons local freight	218,006
Number tons through freight (to and from other roads going over and beyond this road)	437,617
Total number tons freight carried	655,623
Local freight mileage (tons local freight carried one mile)	3,908,512
Through freight mileage (tons through freight carried one mile)†	22,756,084
Total freight mileage	26,664,596
Average number of persons employed	236
DESCRIPTION OF ROAD.	
Main line of road from Island Pond, Vt., to Portland, Me.	149.58 miles.
Main line of road in New Hampshire	52.06 "
" " Vermont	14.92 "
" " Maine	82.60 "

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

Total road belonging to this company	149.58 miles.
Sidings and other tracks not above enumerated	33.31 "
Same in New Hampshire	9.70 "
Total length of track, computed as single track	182.89 "
Same in New Hampshire	61.76 "
Total length of steel rails in tracks, not including steel-top rails	149.58 "
[Weight per yard, 65 lbs.]	
Number of stations on all roads owned by this com- pany	31
Same in New Hampshire	11

EQUIPMENT.

Equipment furnished by the lessees.

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers
Employés	1	6	1	6	1	28
Others.....	1	.....	1	.....	1

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

October 4, 1887. — Gorham, H. Smith, brakeman, coupling.

October 24. — Milan, F. Foley, brakeman, coupling.

November 10. — Gorham, John Davidson, brakeman, coupling,
killed.

February 6, 1888. — North Stratford, E. Finnigan, foreman,
struck by hand-car.

March 16. — Groveton, R. Applebee, brakeman, coupling.

May 9. — North Stratford, William McNeil, tramp, fell between
cars.

June 14. — Groveton, William Smith, brakeman, fell off engine.

September 22. — Gorham, J. H. Adams, brakeman, coupling.

GENERAL INFORMATION.

Maximum weight of locomotives in working order.	35 tons.
Average " " " "	32½ "
Maximum weight of tenders full of fuel and water	30 "
Average " " " "	27½ "
Maximum weight of passenger cars . . .	35 "
Average " " " "	27½ "
" " of mail and baggage cars . . .	20 "
" " of 8-wheel box freight cars . . .	11 "
" " of 8-wheel platform cars . . .	7½ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	41 feet 5 in.
Total length of heaviest engine and tender over all	51 feet 4 in.
Number of locomotives equipped with train brake. [Kind of brake, Westinghouse automatic.]	All passenger engines.
Number of cars equipped with train brake . . . [Kind of brake, Westinghouse automatic.]	All passenger cars.
Number of passenger cars with Miller platform and buffer	All passenger cars.

BRIDGES.

Number of spans of iron bridges of 25 feet and upwards*	22
Aggregate length of same for single track, 1,777 ft.	
Number of crossings of highways at grade* . . .	25
" " " over railroad . . .	4
" " " under " . . .	1
Number of highway bridges less than 18 feet above track	4
Number of crossings at which there are neither signals nor flagmen*	25

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3.66 cents.
Average rate of fare per mile received from passengers to and from other roads	2.27 "
Average rate of fare per mile for season-ticket passengers ‡	1.25 "

In New Hampshire on miles of road owned. † Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

Average rate of fare per mile received from all passengers	2.82 cents.
Average rate of local freight per ton per mile *	1.85 "
Average rate of freight per ton per mile received from freight to and from other roads	.56 "
Average rate of freight per ton per mile received from all freight	.75 "
CAPITAL STOCK.	
Capital stock authorized by charter and acts of Legislature	\$5,484,000
Capital stock authorized by votes of company	5,484,000
Capital stock issued (number of shares, 11,285 sterling; 215 federal; 35 fractional); amount paid in	\$5,484,000.00
Total amount paid in (as per books of the company)	5,484,000.00
DEBT.	
Funded debt as follows:	
1st mortgage bonds, due November 2, 1888; rate of interest, 6 per cent	\$308,000.00
Interest paid on same during year	\$32,460.00
2d mortgage bonds, due October 1, 1884; rate of interest, 6 per cent	1,499,916.00
Interest paid on same during year	\$89,994.96
3d mortgage bonds, due May 1, 1891; rate of interest, 6 per cent	712,932.00
Interest paid on same during year	\$42,775.92
Balance on exchange of bonds	152.00
Interest paid on same during year	9.12
Total amount of funded debt	\$2,521,000.00

NAMES AND RESIDENCES OF OFFICERS.

Joseph Hickson, *President*, Montreal, Que.; Philip Henry Brown, *Vice-President*, Portland, Me.; W. W. Duffett, *Treasurer*, Portland, Me.; F. R. Barrett, *Clerk of Corporation*, Portland, Me.

* Rates as per tariff.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Joseph Hickson, Montreal, Que.; Philip Henry Brown, Portland, Me.; Sir Alexander T. Galt, Montreal, Que.; Charles E. Barrett, Francis K. Swan, Harrison J. Libby, George P. Wescott, William L. Putnam, Franklin R. Barrett, Portland, Me.

PROPER ADDRESS OF THE COMPANY:

ATLANTIC & ST. LAWRENCE RAILROAD COMPANY,
PORTLAND, ME.

FRANKLIN R. BARRETT,
JOSEPH HICKSON,
PHILIP HENRY BROWN,
SIR ALEX. T. GALT,
CHARLES E. BARRETT,
FRANCIS K. SWAN,
HARRISON J. LIBBY,
GEORGE P. WESCOTT,
WILLIAM L. PUTNAM,

Directors.

W. W. DUFFETT,

Treasurer.

STATE OF MAINE.

CUMBERLAND, ss. December 31, 1888. Then personally appeared F. R. Barrett, director, and W. W. Duffett, treasurer, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

GEO. E. B. JACKSON, *Justice of the Peace.*

REPORT

OF THE

BOSTON & LOWELL RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$1,970,196.40
Total expense (including taxes)	911,398.45
Net income	1,058,797.95
Rentals:	298,500.00
Boston, Concord & Montreal R. R.	\$298,500.00
Interest accrued during year:	371,208.95
On funded debt	\$315,680.77
On other debt	55,528.18
Dividends declared (7 per cent)	387,058.00
Balance for the year	2,031.00
Balance at commencement of year	\$656,551.95
Balance September 30, 1888	658,582.95
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$100,244.75
From through passengers (to and from other roads over and beyond this road)	295,322.46
From express and extra baggage	18,000.00
From mails	23,630.40
Total earnings from passenger department	437,197.61
From local freight (all freight starting from or stopping at any station on this road) *	108,789.58
From through freight (to and from other roads over and beyond this road)	503,597.77
Total earnings from freight department	612,387.35
Total transportation earnings	1,049,584.96

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Rents for use of road	\$765,266.95
Income from all other sources, viz.:	155,344.49
Rent of tenements, etc.	\$2,070.09
Miscellaneous property, etc.	17,057.35
Boston & Maine guarantee	134,186.05
Accumulation of sinking fund	2,031.00
Total income from all sources	\$1,970,196.40

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$18,865.90
Legal expenses	1,199.00
Insurance	6,332.32
Stationery and printing	4,428.55
Outside agencies and advertising	4,930.54
Contingencies and miscellaneous	32,065.51
Repairs of bridges (including culverts and cattle- guards)	27,174.32
Repairs of buildings	25,577.32
Repairs of fences, road-crossings, and signs	6,651.11
Renewal of rails	16,413.16
[No. tons steel laid, 557,980.]	
Renewal of ties	31,313.91
[No. laid, 93,601.]	
Repairs of road-bed and track	120,951.56
Repairs of locomotives	70,715.73
Fuel for locomotives	155,951.87
[Tons of coal, 23,951; cords of wood, 10,223.]	
Water supply	5,738.86
Oil and waste	11,706.65
Locomotive service *	75,048.87
Repairs of passenger cars	25,824.79
Passenger-train service *	26,963.39
Passenger-train supplies	3,206.23
Mileage passenger cars †	1,203.48
Repairs of freight cars	54,432.17
Freight-train service *	38,962.19
Freight-train supplies	1,734.61
Mileage freight cars †	26,831.27
Telegraph expenses	9,840.66
Loss and damage, freight and baggage	2,870.53
Loss and damage, property and cattle	2,129.42
Personal injuries	14,037.74
Agents' and station service *	41,813.66
Station supplies	7,478.36
Total operating expenses	\$72,393.68

* Salaries and wages. † Debit balances.

Taxes, state }	
Taxes, local }	\$32,004.77
Total operating expenses and taxes	\$904,398.45
Organization expenses	7,000.00
	\$911,398.45

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$6,810,901.21	
Cost of equipment	823,837.59	
Wharves and wharf property	1,254,036.46	
Investment in Manchester & Keene R. R.	337,749.70	
Bedford & Billerica R. R.	53,232.58	
Woburn Branch extension	290,237.24	
Double track, Middlesex Central	70,497.90	
Improvement account, third track, etc.	19,978.07	
Stocks, bonds, and investments	2,511,330.50	
Total permanent investments		\$12,171,801.25
Cash	\$70,588.12	
Bills receivable	713,010.52	
Due from agents and companies	664,062.21	
Sinking fund	52,805.92	
Total cash assets		1,500,466.77
Leased equipment		228,226.06
Total assets (as per books of the company)		\$13,900,494.08

LIABILITIES.

Capital stock		\$5,529,400.00
Funded debt		6,674,400.00
Unfunded debt, viz.:		799,276.14
Interest accrued, not yet payable	\$156,658.67	
Interest unpaid	57,526.94	
Dividends unpaid	2,383.50	
Notes payable	580,000.00	
Vouchers and accounts	2,707.03	
Profit and loss balance		658,582.95
Nashua & Lowell R. R., leased equipment		228,226.06
Improvement account		10,608.93
Total liabilities (as per books of the company)		\$13,900,494.08

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	485,968
Freight-train mileage	641,961
Total revenue train mileage	1,127,929
Switching-train mileage	79,207
Other train mileage	50,512
Total train mileage	1,257,648
Number of local passengers (including season)	195,580
Number of through passengers (to and from other roads going over and beyond this road)	238,217
Total number of passengers carried	433,797
Local passenger mileage (local passengers carried one mile)	2,789,889
Through passenger mileage (through passengers carried one mile)	10,998,341
Total passenger mileage	13,788,230
Number tons local freight	148,593
Number tons through freight (to and from other roads going over and beyond this road)	601,814
Total number tons freight carried	750,407
Local freight mileage (tons local freight carried one mile)	5,111,406
Through freight mileage (tons through freight carried one mile)*	42,418,665
Total freight mileage	47,530,071
Average number of persons employed	940

DESCRIPTION OF ROAD.

Main line of road from Boston to Lowell	26.75 miles.
Main line of road in Massachusetts	26.75 "
Double track on main line	26.75 "
Total length of branches owned in Massachusetts	71.34 "
Double track on branches	15.45 "
Total road belonging to this company	98.09 "
Sidings and other tracks not above enumerated	63.92 "
Total length of track computed as single track	204.21 "
Total length of steel rails in tracks, not including steel-top rails	120.50 "
[Weight per yard, 60 to 72 lbs.]	

Roads and Branches belonging to other Companies, operated by this Company under lease or contract.

Boston, Concord & Montreal R. R.	187.26 miles.
Total length of above road	187.26 "
Total length of above road in New Hampshire	187.26 "

* Carried to and from other roads.

Total miles of road operated by this company	187.26 miles.
Total miles of road operated by this company in New Hampshire	187.26 "
Number of stations in New Hampshire on all roads operated by this company	54
Number of telegraph offices in same	37
Number of stations on all roads owned by this company in Massachusetts	72

EQUIPMENT.

	Leased.	Owned.
Number of locomotives.....	37	113
Number of passenger cars	26	137
Number of parlor or sleeping cars.....	5	7
Number of baggage, mail, and express cars (milk, 12)..<	24	64
Number of freight cars (basis of 8 wheels).....	918	1,961
Number of other cars: Construction.....		6
Number of saloon and derrick.....		30
Number of snow-plows.....		8

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....								
Employés.....					3	6	3	6
Others.....					3	1	3	1

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

October 13, 1887.—W. H. Swain, of Warren, N. H., a fireman, had one leg broken by his engine being derailed by a misplaced switch, at Wentworth, N. H.

November 25. — Abram Kortzen, a peddler from Boston, Mass., while walking upon the track at Laconia, N. H., was struck by a train. Not seriously injured.

December 22. — Scott Wells, of North Haverhill, a conductor on freight train, had his head caught between one end of a car and lumber upon another car, at West Rumney, N. H. Not seriously injured.

December 24. — E. C. Large, of Haverhill, N. H., a brakeman, was quite badly bruised by being struck by a bridge while climbing up the side of a saloon car, at East Concord, N. H.

December 26. — C. E. Pike, of Meredith, N. H., had his hand crushed while coupling cars at East Tilton, N. H.

January 3, 1888. — John Goodridge, of Lisbon, N. H., fell from a freight car at Alder Brook, N. H., cutting and bruising his shoulder and head, and fracturing his arm.

February 14. — Everett J. Sanborn, of Rumney, N. H., a freight brakeman, was instantly killed by falling from the top of a train, or being knocked off by a bridge, near Wentworth, N. H.

February 15. — John Lamontaigne, of Whitefield, N. H., while walking upon the track in an intoxicated condition, was struck by a train at Whitefield and instantly killed.

January 3. — Alice Cleasby, of Littleton, N. H., while coasting, struck the rear end of an express train, near Littleton station, and was fatally injured.

April 21. — E. C. Sherwell, of Plymouth, N. H., was slightly bruised in a collision near Ashland Summit, N. H., while running as engineer.

April 30. — Wilber F. Cowen, of Lancaster, N. H., while climbing down the side of a saloon car was struck by a bridge and fatally injured.

July 2. — Margaret B. Crawford, of Tilton, N. H., aged one and a half years, crawled through the fence, near Tilton station, upon the track, and was struck by a shifting engine, being instantly killed.

July 28. — Jesse P. Bradford, of Woodsville, N. H., fell from a train of which he was conductor, near Wentworth, N. H., and was instantly killed.

GENERAL INFORMATION.

Charges for the transportation of company's supplies are 1 cent per ton per mile and are included in the earnings.

RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company *	3.59 cents.
Average rate of fare per mile received from passengers to and from other roads	2.69 "
Average rate of fare per mile received from all passengers	2.87 "
Average rate of local freight per ton per mile *	2.11 "
Average rate of freight per ton per mile received from freight to and from other roads	1.18 "
Average rate of freight per ton per mile received from all freight	1.28 "

NAMES AND RESIDENCES OF OFFICERS.

T. Jefferson Coolidge, *President*, Manchester, Mass.; C. E. A. Bartlett, *General Manager*, Chelmsford, Mass.; M. Taylor, *Auditor*, Arlington, Mass.; C. E. A. Bartlett, *Treasurer*, Chelmsford, Mass.; C. E. Cram, *Clerk of Corporation*, Winchester, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

T. Jefferson Coolidge, Manchester, Mass.; Edwin Morey, Boston, Mass.; Frederick E. Clark, Lawrence, Mass.; William Powell Mason, Boston, Mass.; A. Cochrane, Boston, Mass.; William A. Haskell, Boston, Mass.; F. L. Higginson, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

BOSTON AND LOWELL RAILROAD CORPORATION,
BOSTON, MASS.

C. E. A. BARTLETT,
Treasurer.

C. E. A. BARTLETT,
General Manager.

* Rates as per tariff.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, February 19, 1889. Then personally appeared C. E. A. Bartlett and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

SAMUEL B. HILDRETH, *Justice of the Peace.*

REPORT

OF THE

BOSTON, CONCORD & MONTREAL RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$299,185.12
Total expense (including taxes)	5,149.06
Net income	294,036.06
Rental Pemigewasset Valley R. R.	\$30,204.00
Interest accrued during year:	
On funded debt	172,614.00
On other debt	45,760.56
Dividends declared (2½ per cent) on preferred stock, payable semi- annually	38,440.00
	287,018.56
Balance for the year (surplus)	7,017.50
Balance at commencement of year	\$595,767.80
Add interest on coupons	288.00
	596,055.80
Balance at commencement of year as so changed	596,055.80
Balance September 30, 1888 (surplus)	603,073.30
ANALYSIS OF EARNINGS.	
Rents for use of road	\$295,000.00
Income from all other sources:	4,185.12
On account organization expenses	\$3,500.04
Interest	685.08
Total income from all sources	\$299,185.12

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment . . .	\$4,926,850.87	
Interest in Pemigewasset House . . .	16,000.00	
Total permanent investments . . .		\$4,942,850.87
Cash	\$85,827.15	
Materials and supplies	230,875.83	
Sinking fund (trustees)	201,500.00	
Debit balances	44,705.84	
Total cash assets		562,908.82
Total assets (as per books of the company) . . .		\$5,505,759.69

LIABILITIES.

Capital stock		\$1,800,000.00
Funded debt		3,071,600.00
Unfunded debt, viz.:		31,086.39
Interest unpaid	\$3,496.00	
Dividends unpaid (including dividend Nov. 1, 1888)	27,590.39	
Profit and loss balance		603,073.30
Total liabilities (as per books of the company) . . .		\$5,505,759.69

*Present or Contingent Liabilities not included in the
Balance-sheet.*

Notes of the company to the amount of \$890,000.00 Of which amount is represented by sink- ing fund bonds in our own and trust- ees' hands, included in funded debt, as above	422,000.00	
The remainder represents amounts paid on account of extension, improvements, etc. Total (not included in balance-sheet) . . .		468,000.00

DESCRIPTION OF ROAD.

Main line of road from Concord to Groveton Junc- tion	145.877 miles.
Main line of road in New Hampshire	145.877 "
Branches owned by the company, viz.: Wing road to base of Mt. Washington (single track)	20.390 "

Total length of branches owned by company . . .	20.390 miles.
Total length of branches owned by company in New Hampshire . . .	20.390 "
Total road belonging to this company . . .	166.267 "
Total length of steel rails in tracks, not including steel-top rails, including Pemigewasset Valley Railroad. (See report of B. & L. R. R. Corp.) . . .	20.000 "
[Weight per yard, 56 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Pemigewasset Valley R. R., length . . .	20.000 "
Total length of above road . . .	20.000 "
" " " in New Hampshire . . .	20.000 "
Total miles of road operated by this company . . .	186.267 "
Total miles of road operated by this company in New Hampshire . . .	186.267 "
Number of stations in New Hampshire on all roads operated by this company . . .	43
Number of telegraph offices in same . . .	31
Number of stations on all roads owned by this company . . .	38
Same in New Hampshire . . .	38

EQUIPMENT.

Number of locomotives . . .	38
Number of passenger cars, including three observation cars . . .	24
Number of parlor or sleeping cars . . .	5
Number of baggage, mail, and express cars . . .	24
Number of freight cars (basis of 8 wheels) . . .	918
Number of other cars (49 hand and push cars) . . .	98
[The above leased to and operated by the Boston & Lowell Railroad Corporation.]	

STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.

See report of Boston & Lowell R. R. Corporation.

GENERAL INFORMATION.

Maximum weight of locomotives in working order . . .	77.400 tons.
Average " " " " " " . . .	61.137 "
Maximum weight of tenders full of fuel and water . . .	35.250 "
Average " " " " " " . . .	43.600 "
Maximum weight of passenger cars . . .	38.700 "
Average " " " " " " . . .	35.150 "

Average weight of mail and baggage cars . .	31.600 tons.
“ “ of 8-wheel box freight cars . .	21.000 “
“ “ of 8-wheel platform cars . .	16.500 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	43 $\frac{3}{2}$ feet.
Total length of heaviest engine and tender over all Number of locomotives equipped with train brake .	54 $\frac{1}{2}$ “
[Kind of brake, Westinghouse automatic.]	23
Number of cars equipped with train brake . .	45
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer	29
Number of railroad crossings at grade:	1
Portland & Ogdensburg Railroad at Fabyan's.	

CAPITAL STOCK.

Capital stock authorized by votes of company \$1,800,000	
Capital stock issued (number of shares, 18,000); amount paid in	\$1,800,000.00
Total amount paid in (as per books of the company)	1,800,000.00
Total number of stockholders 1,883	
Number of stockholders in New Hampshire 1,109	
Amount of stock held in New Hampshire \$1,286,100	

DEBT.

Funded debt as follows:

Bonds due January 1, 1889; rate of interest, 6 per cent	\$202,000.00
Interest paid on same during year \$12,120.00	
Bonds due April 1, 1893; rate of interest, 6 per cent	582,400.00
Interest paid on same during year \$34,944.00	
Bonds due April 1, 1893; rate of interest, 7 per cent	1,365,000.00
Interest paid on same during year \$95,550.00	
Bonds due January 1, 1911; rate of interest, 6 per cent	500,000.00
Interest paid on same during year \$30,000.00	
Bonds due August 15, 1865 (never presented) . .	200.00

Trial balance \$3,071,600.00	\$2,649,600.00
Deduct sinking fund bonds 422,000.00	
Total amount of funded debt	\$2,649,600.00

NAMES AND RESIDENCES OF OFFICERS.

Edward H. Rollins, *President*, Dover, N. H. ; Edward D. Harlow, *Treasurer*, Boston, Mass. ; Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Edward H. Rollins, Dover, N. H. ; Harry Bingham, Littleton, N. H. ; Nathan H. Weeks, Plymouth, N. H. ; Noah S. Clark, Manchester, N. H. ; Samuel S. Kimball, Concord, N. H. ; Charles E. Morrison, Boston, Mass. ; Lewis C. Pattee, Lebanon, N. H. ; Charles A. Busiel, Laconia, N. H.

PROPER ADDRESS OF THE COMPANY :

BOSTON, CONCORD & MONTREAL RAILROAD,

Treasurer's and Transfer Office,

NO. 31 MILK STREET, BOSTON, MASS.

EDWARD D. HARLOW,

Treasurer.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. December 21, 1888. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE N. CARPENTER, *Justice of the Peace.*

REPORT

OF THE

PEMIGEWASSET VALLEY RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$30,504.00
Total expense (including taxes)	266.13
Net income	30,237.87
Dividends declared (3 per cent semi-annually), paid by the B., C. & M. R. R. to the stockholders of the Pemigewasset Valley R. R.	30,204.00
Balance for the year (surplus)	33.87
Balance at commencement of year as so changed	47.00
Balance September 30, 1888 (surplus)	80.87

ANALYSIS OF EARNINGS.

Rents for use of road	\$30,204.00
Income from all other sources, viz.:	300.00
Received for expenses of organization	\$300.00
Total income from all sources	\$30,504.00

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$250.00
Stationery and printing	3.00
Outside agencies and advertising	13.13
Total operating expenses and taxes	\$266.13

BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$411,157.61
Cost of equipment	91,842.14
Total permanent investments	\$502,999.75
Cash	\$400.25
Balance of income for organization	80.87
Total cash assets	481.12
Total assets (as per books of the company)	\$503,480.87
LIABILITIES.	
Capital stock	\$503,400.00
Profit and loss balance	80.87
Total liabilities (as per books of the company)	\$503,480.87
<i>Present or Contingent Liabilities not included in the Balance-sheet.</i>	
Unsettled claims for construction, to be paid by capital stock authorized by corporation, on which dividends are to be paid under the lease of the Pemigewasset Valley R. R. to the Boston, Concord & Montreal R. R., estimated at	\$26,600
Total (not included in balance-sheet)	26,600.00
DESCRIPTION OF ROAD.	
Main line of road from Plymouth to Franconia, and branch from Campton to Livermore, estimated	75.000 miles.
Main line of road in New Hampshire, estimated	75.000 "
Track laid, if road is not completed	20.057 "
Sidings and other track not above enumerated (not including sidings built by B., C. & M. R. R. and B. & L. R. R., since lease of road, of which this road has no account) . . . . .	.370 "
Total length of track computed as single track	20.430 "
[Weight per yard, 56 lbs.]	
Number of stations on all roads owned by this company	8
Same in New Hampshire	8

EQUIPMENT.	
Number of locomotives leased to B., C. & M. R. R. and operated by B. & L. R. R.	2
Number of passenger cars	2
Number of freight cars (basis of 8 wheels)	125
STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.	
See report of Boston & Lowell R. R. Corporation.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$2,000,000
Capital stock authorized by votes of company	530,000
Capital stock issued (number of shares, 5,034); amount paid in	\$503,400.00
Total amount paid in (as per books of the company)	503,400.00
Total number of stockholders	172
Number of stockholders in New Hampshire . . .	123
Amount of stock held in New Hampshire	\$355,100

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H.; Edward D. Harlow, *Treasurer*, Boston, Mass.; George H. Adams, *Clerk of Corporation*, Plymouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Manchester, N. H.; Daniel Saunders, Lawrence, Mass.; Nathan H. Weeks, Plymouth, N. H.; Joseph W. Campbell, Woodstock, N. H.; Daniel Barnard, Franklin, N. H.; John C. French, Henry Chandler, Manchester, N. H.; John J. Cilley, South Deerfield, N. H.; George W. Hills, Lawrence, Mass.

PROPER ADDRESS OF THE COMPANY:

PEMIGEWASSET VALLEY RAILROAD.

President's Office, MANCHESTER, N. H.

Treasurer's Office, BOSTON, MASS.

Clerk's Office, PLYMOUTH, N. H.

The Pemigewasset Valley Railroad is leased for 99 years to the Boston, Concord & Montreal Railroad, and is operated by the Boston & Lowell Railroad as agent for the Boston, Concord & Montreal Railroad.

EDWARD D. HARLOW,

Treasurer.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. December 21, 1888. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE N. CARPENTER, *Justice of the Peace.*

REPORT

OF THE

BOSTON & MAINE RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$13,110,798.13
Total expense (including taxes)	9,253,543.54
Net income	3,857,254.59
Rentals:	2,862,901.84
Eastern R. R.	\$871,452.75
Worcester, Nashua & Rochester R. R.	250,000.00
Portland, Saco & Portsmouth R. R.	90,300.00
Portsmouth, Great Falls & Conway R. R.	45,250.00
Portsmouth & Dover R. R.	46,140.00
Lowell & Andover R. R.	52,500.00
Dover & Winnepesaukee R. R.	29,000.00
Eastern R. R. in New Hampshire	22,500.00
Manchester & Lawrence R. R.	102,500.00
Newburyport City R. R.	6,000.00
West Amesbury Branch R. R.	5,700.00
Wolfeborough R. R.	2,240.00
Kennebunk & Kennebunkport R.R.	2,925.00
Boston & Lowell R. R.	655,266.95
Nashua & Lowell R. R.	73,000.00
Stony Brook R. R.	20,000.00
Wilton R. R.	16,950.00
Peterborough R. R.	35,699.64
Central Massachusetts R. R.	101,500.00
Connecticut & Passumpsic Rivers R. R.	233,000.00
Massawippi Valley Railway	44,000.00
Sundry track rentals	7,037.50
Northern R. R. operated under contract, 9 months	149,940.00

Interest accrued during year:	\$375,863.41
On funded debt \$328,460.00	
On other debt 47,403.41	
Dividends declared (10 per cent)	700,000.00
Balance for the year (deficit)	81,510.66
Balance at commencement of year . \$1,799,001.14	
Add:	
Increase in valuation of Portland & Rochester R. R. stock to par 60,459.44	
Balance at commencement of year as so changed	1,859,460.58
Balance September 30, 1887 (surplus)	1,777,949.92

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from and stopping at any station on this road)*	\$5,393,048.46
From through passengers (to and from other roads)	1,096,516.08
From express and extra baggage	377,831.42
From mails	156,553.50
Total earnings from passenger department	7,023,949.46
From local freight (all freight starting from and stopping at any station on this road)*	3,434,942.39
From through freight (to and from other roads) on through way-bill	2,265,626.42
Total earnings from freight department	5,700,568.81
Total transportation earnings	12,724,518.27
Rents for use of road	11,269.62
Income from all other sources, viz.:	375,010.24
Rents of tenements, land, etc. \$144,011.49	
Income from investments 164,637.98	
Income from coal-hoisting engines 5,720.39	
Miscellaneous 60,640.38	
Total income from all sources	\$13,110,798.13

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$193,658.53
Legal expenses	60,655.67
Insurance	29,717.89
Stationery and printing	59,704.22
Outside agencies and advertising	43,680.11
Contingencies and miscellaneous	99,265.92
Repairs of bridges (including culverts and cattle-guards)	373,283.96

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Repairs of buildings	\$347,325.94
Repairs of fences, road-crossings, and signs	58,119.68
Renewal of rails	176,823.44
Number tons steel laid, new	11,830
" " " old	4,890
Total number tons laid	16,720
Number tons iron laid	562
Renewal of ties	200,852.99
[No. laid, 577,642.]	
Repairs of road-bed and track	995,419.88
Repairs of locomotives	443,191.68
Fuel for locomotives	1,019,178.53
[Tons of coal, 238,385; cords of wood, 15,254.]	
Water supply	80,442.55
Oil and waste	45,887.26
Locomotive service *	703,113.36
Repairs of passenger cars	457,890.84
Passenger-train service *	371,929.78
Passenger-train supplies	75,631.23
Mileage passenger cars †	13,049.36
Repairs of freight cars	406,521.49
Freight-train service *	443,231.82
Freight-train supplies	17,574.14
Mileage freight cars †	117,792.90
Telegraph expenses	98,290.66
Loss and damage, freight and baggage	14,629.27
Loss and damage, property and cattle	12,834.10
Personal injuries	205,134.53
Agents' and station service *	1,252,973.12
Station supplies	203,540.23
Total operating expenses	\$8,621,345.08
Taxes, state	431,415.11
" local	170,783.35
Total operating expenses and taxes	\$9,253,543.54
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Expenditures charged to property accounts:	
3,952 $\frac{1}{10}$ shares Portland & Ogdens- burg R. R. stock	\$146,238.80
Increase in valuation of 3,000 shares of Portland & Rochester R. R. stock to par	60,459.44
5 shares of Danvers R. R. stock	15.00
Total charges to property accounts	\$206,713.24
Net additions to property accounts for the year	\$206,713.24

* Salaries and wages. † Debit balances.

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$9,620,937.63	
Cost of equipment	1,308,180.00	
Lands in Dover and Old Orchard . .	14,132.21	
" Portland	16,467.50	
" Saco	15,000.00	
" Somerville	5,850.00	
Stock of Dover & Winnepesaukee R. R.	263,144.48	
Stock of Portland & Rochester R. R. .	300,000.00	
Stock of Portland & Ogdensburg R. R.	146,238.80	
Stock and bonds Newburyport R. R. .	302,493.95	
Stock and account of Danvers R. R. .	27,445.00	
Stock of Orchard Beach R. R. . . .	49,624.89	
Bonds of Danvers R. R.	125,000.00	
Steamer Mount Washington and wharves	69,260.24	
Total permanent investments		\$12,263,774.70
Cash	\$161,749.00	
Bills receivable	210,715.74	
Due from agents and companies . . .	1,462,083.05	
Materials and supplies	1,495,524.22	
Sinking fund	128,075.29	
Debit balances	563,174.60	
Improvement accounts	3,283,347.37	
Total cash assets		7,304,669.27
Total assets (as per books of the company) .		\$19,568,443.97

LIABILITIES.

Capital stock		\$7,000,000.00
Funded debt		5,673,000.00
Unfunded debt, viz.:		4,989,418.76
Interest unpaid	\$84,611.66	
Accrued, not yet due \$75,736.66		
Uncalled for	8,875.00	
Rents of other roads accrued, unpaid	375,800.38	
Dividends unpaid	18,891.00	
Connecticut & Passumpsic R. R. lease account	136,927.63	
Eastern R. R. lease account	170,240.33	

Boston & Lowell R. R. lease account	\$84,987.71	
Notes payable	2,278,000.00	
Vouchers and accounts	1,839,960.05	
Profit and loss balance		\$1,777,949.92
Improvement account fund		128,075.29
Total liabilities (as per books of the company)		\$19,568,443.97

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	5,618,402
Freight-train mileage	3,024,807
Total revenue train mileage	8,643,209
Switching-train mileage	1,663,742
Other train mileage	333,232
Total train mileage	10,640,183
Number of season-ticket passengers *	2,380,944
Number of local passengers (including season)	25,586,971
Number of through passengers (to and from other roads going over and beyond this road)	1,052,550
Total number of passengers carried	26,639,521
Local passenger mileage (local passengers carried one mile)	278,921,490
Through passenger mileage (through passengers carried one mile)	56,180,693
Total passenger mileage	335,102,183
Number tons local freight	3,284,694
Number tons through freight (to and from other roads, going over and beyond this road)	2,785,136
Total number tons freight carried	6,069,830
Local freight mileage (tons local freight carried one mile)	119,616,975
Through freight mileage (tons through freight carried one mile) †	171,942,772
Total freight mileage	291,559,747
Average number of persons employed	8,919

DESCRIPTION OF ROAD.

Main line of road from Boston, Mass., to Portland, Me.	115.500 miles.
Main line of road in New Hampshire	34.750 "
" " Maine	44.000 "
" " Massachusetts	36.750 "
Double track on main line	70.960 "

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

Same in New Hampshire	14.890 miles.
Branches owned by the company, viz.:	
Medford (single track)	2.000 "
Methuen (double track, 1; single track, 2.75)	3.750 "
Great Falls (single track)	2.750 "
Total length of branches owned by company	8.500 "
Total length of branches owned by company in New Hampshire	2.750 "
Total length of branches owned by company in Massachusetts	5.750 "
Double track on branches	1.000 "
Total road belonging to this company	124.000 "
Sidings and other tracks not above enumerated	101.466 "
Same in New Hampshire	20.957 "
Total length of track computed as single track	297.426 "
Same in New Hampshire	73.242 "
Total length of steel rails in tracks, not including steel-top rails	220.321 "
[Weight per yard, 60 and 72 lbs.]	

*Roads and Branches belonging to other Companies,
operated by this Company under lease or contract.*

Eastern R. R. of Massachusetts and branches, length	118.840 miles.
Worcester, Nashua & Rochester R. R.,	94.480 "
Eastern R. R. in New Hampshire,	16.080 "
Portland, Saco & Portsmouth R. R.,	50.760 "
Portsmouth, Great Falls & Conway R. R.,	72.860 "
Wolfeborough R. R.,	12.030 "
Chelsea Beach R. R.,	1.780 "
Newburyport City R. R.,	2.240 "
Portsmouth & Dover R. R.,	10.880 "
Danvers R. R.,	9.259 "
Newburyport R. R.,	26.979 "
Lowell & Andover R. R.,	8.730 "
West Amesbury Branch R. R.,	4.500 "
Dover & Winnepesaukee R. R.,	29.000 "
Manchester & Lawrence R. R.,	22.390 "
Kennebunk & Kennebunkport R. R.,	4.500 "
Boston & Lowell R. R. and branches,	98.090 "
Nashua & Lowell R. R.,	14.500 "
Stony Brook R. R.,	13.160 "
Wilton R. R.,	15.500 "
Peterborough R. R.,	10.500 "
Manchester & Keene R. R., operated jointly with Concord R. R.,	29,590 "
Central Massachusetts R. R.,	98.770 "
Connecticut & Passumpsic Rivers R. R.,	110.300 "

Massawippi Valley Railway, length	36.750 miles
Northern and Concord & Claremont R. R., length	172.320 "
Total length of above roads	1,084.788 "
" " " in New Hampshire	450.750 "
" " " in other States	634.038 "
Eastern R. R. of Mass. and branches in Mass.	118.840 "
Worcester, Nashua & Rochester R. R., "	39.460 "
Chelsea Beach R. R., "	1.780 "
Newburyport City R. R., "	2.240 "
Newburyport R. R., "	26.979 "
Danvers R. R., "	9.259 "
Lowell & Andover R. R. "	8.730 "
West Amesbury Branch R. R., "	2.250 "
Boston & Lowell R. R. and branches, "	98.090 "
Nashua & Lowell R. R., "	9.250 "
Stony Brook R. R., "	13.160 "
Central Massachusetts R. R., "	98.770 "
Portland, Saco & Portsmouth R. R., in Maine	50.760 "
Kennebunk & Kennebunkport R. R., "	4.500 "
Portsmouth, Great Falls & Conway R. R., in Maine	2.920 "
Connecticut & Passumpsic Rivers R. R., in Vermont	110.300 "
Massawippi Valley Railway, in Canada	36.750 "
Total length of above roads	1,084.788 "
" " " in New Hampshire	450.750 "
" " " in other States	428.808 "
" " " in Massachusetts	58.180 "
" " " in Vermont	110.300 "
" " " in Canada	36.750 "
Total miles of road operated by this company	1,208.788 "
Total miles of road operated by this company in New Hampshire	485.500 "
Number of stations in New Hampshire on all roads operated by this company	159
Number of telegraph offices in same	97
Number of stations on all roads owned by this company	63
Same in New Hampshire	18

EQUIPMENT.

	Leased.	Owued.	Total.
Number of locomotives	298	123	421
Number of passenger cars	363	214	577
Number of parlor or sleeping cars	11	12	23
Number of baggage, mail, and express cars	147	42	189
Number of freight cars (basis of 8 wheels)	5,958½	2,343	8,301½
Number of other cars	295	109	404
Number of snow-plows	34	16	50

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....							16	68
Employees..	3	5	3	8	2	9	18	105
Others.....			5	2	5	2	57	47

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

Western, Eastern, Northern, and Worcester, Nashua & Portland Divisions.

December 2, 1887.—William F. Brackett, employé, coupling cars in Conway Junction yard, was caught and had his arm badly crushed, but no bones broken.

December 7.—William E. Card, a trespasser, was found run over and killed shortly after the passage of train No. 288, near the foundry crossing, Great Falls station.

December 8.—Mrs. Melissa Bickford, a trespasser, attempting to cross the tracks at Granite-street crossing, Manchester, N. H., in front of an approaching train, was struck and run over, receiving injuries from which she soon afterwards died.

December 10.—Charles W. Thompson, a brakeman, fell from the top of his car under the wheels of another car, receiving injuries from which he soon afterwards died.

December 13.—An unknown man, a trespasser, attempting to board a train while it was in motion, as it is presumed, at North Hampton station, fell under the wheels, receiving injuries from which he soon afterwards died.

April 4, 1888.—Addison S. Roberts, a brakeman, while getting underneath a smoking-car for the purpose of hooking on safety chains, at Manchester, N. H., was caught by the shoulders by another car, backed down against the car he was getting under, breaking his collar bone.

April 21.—Charles S. Jenness, employé, standing on the ground to release a brake on a standing car, at Londonderry station, was caught and knocked down by cars backed down upon him, and had his left leg run over by the car he was tending.

May 5.—W. Douglass, a trespasser, walking on the tracks in Dover, was struck by the engine of a passing train, sustaining a scalp wound and other bodily bruises.

June 12. — F. W. Weymouth, a brakeman, attempting to couple cars at Rochester was caught and his arm badly jammed.

June 15. — Smith Pike, a brakeman, in coupling an engine to a train in Rochester had his right hand caught and lost one finger and thumb.

June 18. — Charles W. Eastman drove on to the tracks at a private crossing near Exeter, with a horse-rake, in front of a passing train, and was struck and killed.

Lowell System.

November 7, 1887. — J. B. Claggett was struck at a crossing while driving a team in Hollis and somewhat injured.

December 7. — Alexander Turnbull, trespasser, attempted to board a moving freight train below Nashua and was killed.

December 7. — Patrick Doerety, freight brakeman, fell from the top of a freight car at Milford and sprained one ankle.

December 7. — Harry Mason, freight brakeman, at Nashua, while coupling cars had his shoulder hurt by lumber falling over one end of car and pinning him against a box car.

January 8, 1888. — Eugene V. Massey, freight brakeman, fell from top of a freight car at Nashua, and received injuries from which he died soon after.

May 8. — George Case, freight brakeman, was injured at a derailment near Marlborough.

May 8. — James G. Hartshorn, conductor, slightly injured while coupling cars at Nashua.

Northern Railroad.

January 10. — Henry Nason, sectionman, while walking on track in yard at Concord was struck by car attached to shifting engine and instantly killed.

January 14. — Martin Dooley, sectionman, while working about the track in yard at Concord, stepped in front of shifting engine and was killed.

February 4. — George G. Clough, freight brakeman, while riding on top of a freight train near Webster Place, it broke apart and the sections came together throwing him to the ground. He was injured to some extent but no bones broken.

February 19. — George Preston, brakeman on freight train, probably slipped from the top of a freight car while the train was in motion and fell under the wheels and was killed near East Andover.

August 24. — Nelson P. Sargent, brakeman (off duty), while attempting to board a moving freight train in West Lebanon yard, slipped and fell so that one foot was run over and so badly injured that it was necessary to amputate it.

September 8. — At White River Junction, William Shaddock, passenger brakeman, while uncoupling engine from car had his fingers badly jammed between the bunters.

Concord & Claremont (N. H.) Railroad.

March 9. — George H. Colby, brakeman on mixed train, had his fingers and thumb badly jammed while coupling cars at Concord.

March 14. — Charles S. Smart, employé, while standing on flat car to which a snow-plow was attached, and being pushed through a drift by three locomotives, the snow came over the plow on to the car and swept him from it near Hillsborough. He was found in about fifteen minutes, having evidently been smothered to death.

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	58 tons.
Average " " " "	34 "
Maximum weight of tenders full of fuel and water	42½ "
Average " " " "	23 "
Maximum weight of passenger cars . . .	28¾ "
Average " " " "	22 "
" " of mail and baggage cars . . .	19 "
" " of 8-wheel box freight cars . . .	9½ "
" " of 4-wheel " " " " . . .	4½ "
" " of 8-wheel platform cars . . .	7½ "
" " of 4-wheel " " " " . . .	3¾ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender . . .	46½ feet.
Total length of heaviest engine and tender over all " of longest " " " " . . .	58 "
Number of locomotives equipped with train brake . [Kind of brake, Westinghouse automatic.]	235
Number of cars equipped with train brake . . . [Kind of brake, Westinghouse automatic.]	789
Number of passenger cars with Miller platform and buffer . . .	690
Number of miles of road operated by this company not furnished with telegraph facilities . . . From Bradford to Georgetown, Mass.	6.50 miles.
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards* . . .	1
Aggregate length of same for single track 68 ft.	
Number of spans of stone bridges of 25 feet and upwards* . . .	1
Aggregate length of same for double track 38 ft.	

* In New Hampshire, on miles of road owned.

Number of spans of iron bridges of 25 feet and upwards *	5
Aggregate length of same for single track 176 ft.	
“ “ “ double “ 365½ ft.	
Number of spans of timber bridges of 25 feet and upwards *	3
Aggregate length of same for single track 266 ft.	
Number of crossings of highways at grade * . . .	43
“ “ “ over railroad . . .	9
“ “ “ under “ . . .	3
Number of highway bridges 18 feet above track . . .	1
“ “ “ less than 18 feet above track . . .	8
Number of crossings at which gates or flagmen are maintained . . .	16
Number of crossings at which there are neither signals nor flagmen * . . .	27
Number of railroad crossings at grade : * . . .	1
Concord R. R., at Newmarket Junction.	
Number of railroad crossings over other railroads : * . . .	1
Portsmouth, Great Falls & Conway R. R., Salmon Falls.	
RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company † . . .	2.098 cents.
Average rate of fare per mile received from passengers to and from other roads . . .	1.952 “
Average rate of fare per mile for season-ticket passengers ‡ . . .	0.924 “
Average rate of fare per mile received from all passengers . . .	1.937 “
Average rate of local freight per ton per mile † . . .	2.872 “
Average rate of freight per ton per mile received from freight to and from other roads . . .	1.318 “
Average rate of freight per ton per mile received from all freight . . .	1.955 “
CAPITAL STOCK.	
Capital stock authorized by charter . . .	\$7,000,000
Capital stock authorized by votes of company . . .	7,000,000

* In New Hampshire, on miles of road owned.

† Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

Capital stock issued (number of shares, 70,000) ;	
amount paid in	\$7,000,000.00
Total amount paid in (as per books of the company)	7,000,000.00
Total number of stockholders	3,884
Number of stockholders in New Hampshire	1,075
Amount of stock held in New Hampshire	\$1,512,700

DEBT.

Funded debt, as follows:

Bonds due January 1, 1893 ; rate of interest, 7 per cent	\$1,500,000.00
Interest accrued on same during year \$105,000.00	
Bonds due January 1, 1894 ; rate of interest, 7 per cent	2,000,000.00
Interest accrued on same during year \$140,000.00	
Improvement bonds due February 2, 1905 ; rate of interest, 4 per cent	1,000,000.00
Interest accrued on same during year \$40,000.00	
Improvement bonds due February 1, 1907 ; rate of interest, 4 per cent	500,000.00
Interest accrued on same during year \$20,000.00	
Improvement bonds due February 1, 1937 ; rate of interest, 4 per cent	673,000.00
Interest accrued on same during year \$23,460.00	
Total amount of funded debt	\$5,673,000.00

NAMES AND RESIDENCES OF OFFICERS.

George C. Lord, *President*, Newton, Mass. ; James T. Furber, *General Manager*, Lawrence, Mass. ; William J. Hobbs, *General Auditor*, Malden, Mass. ; *Superintendents* — William Merritt, Western Division, Boston, Mass. ; D. W. Sanborn, Eastern Division, Somerville, Mass. ; John W. Sanborn, Northern Division, Wolfborough Junction N. H. ; George W. Hurlburt, Worcester, Nashua & Portland Division, Worcester, Mass. ; W. F. Simons, Southern Division, Somerville, Mass. ; H. E. Folsom, Passumpsic Division, Lyndonville, Vt. ; George E. Todd, Northern R. R., Concord, N. H. ; W. J. C. Kenney, *General Freight Agent*, Danvers, Mass. ; H. N. Turner, Lowell System, *General Traffic Manager*, Winchester, Mass. ; D. C. Prescott, Lowell System, *General Freight Agent*, Winchester, Mass. ; D. J. Flanders, *General Passenger Agent*, Malden, Mass. ; Amos Blanchard, *Treasurer*, Andover, Mass. ; Chauncey P. Judd, *Clerk of Corporation*, Reading, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George C. Lord, Newton, Mass.; Amos Paul, South Newmarket, N. H.; Nathaniel J. Bradlee, Boston, Mass.; William S. Stevens, Dover, N. H.; James R. Nichols,* Haverhill, Mass.; Joseph S. Ricker, Deering, Me.; Richard Olney, Boston, Mass.; Samuel C. Lawrence, Medford, Mass.; Frank Jones, Portsmouth, N. H.

PROPER ADDRESS OF THE COMPANY:

BOSTON & MAINE RAILROAD,

BOSTON, MASS.

GEORGE C. LORD,
AMOS PAUL,
WILLIAM S. STEVENS,
J. S. RICKER,
FRANK JONES,
RICHARD OLNEY,
SAMUEL C. LAWRENCE,
Directors.

AMOS BLANCHARD,
Treasurer.

JAMES T. FURBER,
General Manager.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. November 28, 1888. Then personally appeared George C. Lord, Amos Paul, William S. Stevens, J. S. Ricker, Frank Jones, Richard Olney, Samuel C. Lawrence, Amos Blanchard, and James T. Furber, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

C. P. JUDG, *Justice of the Peace.*

* Deceased.

REPORT

OF THE

EASTERN RAILROAD IN NEW HAMPSHIRE

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$22,613.50
Total expense (including taxes)	432.63
Net income	22,180.87
Dividends declared ($4\frac{1}{8}$ per cent)	22,162.50
Balance for the year	18.37
Balance at commencement of year	290,350.72
Balance September 30, 1888	290,369.09
<hr/>	
ANALYSIS OF EARNINGS.	
Rents for use of road	\$22,500.00
Income from all other sources	113.50
Total income from all sources	\$22,613.50
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ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks }	\$432.63
Stationery and printing }	
Contingencies and miscellaneous }	
<hr/>	
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$780,535.36
Cash	4,807.00
Total cash assets	\$785,342.36

LIABILITIES.	
Capital stock	\$492,500.00
Dividends unpaid	2,473.27
Profit and loss balance	290,369.09
Total liabilities (as per books of the company)	\$785,342.36

DESCRIPTION OF ROAD.	
Main line of road from New Hampshire state line to Maine state line	16.08 miles.
Main line of road in New Hampshire	16.08 "
Double track on main line	5.94 "
Same in New Hampshire	5.94 "
Sidings and other tracks not above enumerated	10.81 "
Same in New Hampshire	10.81 "
Total length of track computed as single track	32.83 "
Same in New Hampshire	32.83 "
Total length of steel rails in tracks, not including steel-top rails	24.35 "
[Weights per yard, 58, 60, 63, 67, and 68 lbs.]	
Number of stations in New Hampshire on all roads operated by this company	6
Number of stations in New Hampshire on all roads owned by this company	6

BRIDGES.	
Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 429 ft.	
Number of spans of iron bridges of 25 feet and upwards*	1
Aggregate length of same for double track 37 ft.	
Number of spans of timber bridges of 25 feet and upwards*	2
Aggregate length of same for single track 95 ft.	
Number of crossings of highways at grade*	16
“ “ “ over railroad	5
“ “ “ under “	1
Number of highway bridges less than 18 feet above track	5
Number of crossings at which gates or flagmen are maintained	12
Number of crossings at which there are neither signals nor flagmen*	4
Number of railroad crossings at grade:*	1
Concord, at Portsmouth.	

* In New Hampshire, on miles of road owned.

CAPITAL STOCK.		
Capital stock authorized by charter . . .	\$500,000	
Capital stock authorized by votes of company . . .	500,000	
Capital stock issued; amount paid in . . .		\$492,500.00
Total number of stockholders . . .	391	
Number of stockholders in New Hampshire . .	201	
Amount of stock held in New Hampshire	\$309,100	

NAMES AND RESIDENCES OF OFFICERS.

Moody Currier, *President*, Manchester, N. H.; Edward A. Abbot, *Treasurer*, Concord, N. H.; W. H. Hackett, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Moody Currier, Manchester, N. H.; Dexter Richards, Newport, N. H.; Edward L. Giddings, Beverly, Mass.; Edward A. Abbot, Concord, N. H.; William H. Goodwin, Boston, Mass.; Frank A. Philbrick, Rye, N. H.; Samuel C. Eastman, Concord, N. H.

PROPER ADDRESS OF THE COMPANY:

EASTERN RAILROAD IN NEW HAMPSHIRE,
52 OLIVER STREET, BOSTON, MASS.

EDWARD A. ABBOT,
SAMUEL C. EASTMAN,
Directors.

EDWARD A. ABBOT,
Treasurer.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. March 15, 1889. Then personally appeared Edward A. Abbot and Samuel C. Eastman, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

ISAAC W. HAMMOND, *Justice of the Peace.*

REPORT

OF THE

MANCHESTER & LAWRENCE RAIL-ROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$114,382.10
Total expense (including taxes)	20,370.46
Net income	94,011.64
Dividends declared (10 per cent)	100,000.00
Balance for the year (deficit)	5,988.36
Balance at commencement of year	\$168,993.03
Add	4,133.33
Balance at commencement of year as so changed	173,126.36
Balance September 30, 1888	167,138.00
ANALYSIS OF EARNINGS.	
Rents for use of road	\$102,000.00
Income from all other sources, viz. :	12,382.10
Interest	\$3,584.60
Account taxes	8,797.50
Total income from all sources	\$114,382.10
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,250.00
Legal expenses	374.30
Stationery and printing and advertising	398.99
Contingencies and miscellaneous	101.50
Personal injuries	500.00
Total operating expenses	\$2,624.79
Taxes, state	17,745.67
Total operating expenses and taxes	\$20,370.46

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.		
Cost of road and equipment	\$1,000,000.00	
Telegraph	4,770.35	
Hooksett Branch	18,000.00	
Stock of Suncook Valley R. R.	42,040.00	
Stock of Mount Washington R. R.	3,700.00	
Total permanent investments		\$1,068,510.35
Cash	\$73,127.15	
Materials and supplies, C., M. & L. R. R.	32,000.00	
Total cash assets		105,127.15
Total assets (as per books of the company)		\$1,173,637.50

LIABILITIES.		
Capital stock	\$1,000,000.00	
Dividends unpaid	6,499.50	
Profit and loss balance	167,138.00	
Total liabilities (as per books of the company)		\$1,173,637.50

CAPITAL STOCK.		
Capital stock authorized by charter	\$1,000,000	
Capital stock authorized by votes of com- pany	1,000,000	
Capital stock issued (number of shares, 10,000)		\$1,000,000.00
Total number of stockholders	582	
Number of stockholders in New Hampshire	330	
Amount of stock held in New Hampshire	\$555,800	

NAMES AND RESIDENCES OF OFFICERS.

Charles A. Sinclair, *President*, Portsmouth, N. H.; Henry Chandler, *Treasurer*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Charles A. Sinclair, Portsmouth, N. H.; George B. Chandler, Herman F. Straw, and Joseph C. Moore, Manchester, N. H.; John W. Sanborn, Wakefield, N. H.; Elisha R. Brown, Dover, N. H.; William P. Fowler, Boston, Mass.

JOSEPH C. MOORE,
GEORGE B. CHANDLER,
HERMAN F. STRAW,

Directors.

HENRY CHANDLER,

Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. March 15, 1889. Then personally appeared Joseph C. Moore, George B. Chandler, Herman F. Straw, directors, and Henry Chandler, treasurer of Manchester & Lawrence Railroad, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

WILLIS B. KENDALL, *Justice of the Peace.*

REPORT

OF THE

NASHUA & LOWELL RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$91,533.29
Total expense (taxes paid Boston & Lowell R. R.)	2,326.45
Net income	89,206.84
Interest accrued during year:	17,112.75
On funded debt \$17,000.00	
On other debt 112.75	
Dividends declared (9 per cent)	72,000.00
Balance for the year (surplus)	94.09
Balance at commencement of year \$119,274.37	
Add 94.09	
Balance at commencement of year as so changed	\$119,368.46
Balance September 30, 1888	119,368.46
ANALYSIS OF EARNINGS.	
Rents for use of road	\$73,126.00
Income from all other sources, viz:	18,407.29
Interest account \$18,358.29	
Rebate on legal services 49.00	
Total income from all sources	\$91,533.29
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,955.00
Legal expenses	325.00
Contingencies and miscellaneous	46.45
Total operating expenses and taxes	\$2,326.45

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.		
Cost of road	\$691,292.07	
Cost of equipment	218,242.95	
Total permanent investments		\$909,535.02
Cash	\$37,342.44	
Bills receivable	300,000.00	
Sinking fund	11,111.50	
Total cash assets		348,453.94
Total assets (as per books of the company)		\$1,257,988.96

LIABILITIES.		
Capital stock		\$800,000.00
Funded debt		300,000.00
Unfunded debt, viz.:		38,620.50
Interest unpaid (unpaid coupons)	\$723.00	
Dividends unpaid	37,897.50	
Profit and loss balance		119,368.46
Total liabilities (as per books of the company)		\$1,257,988.96

DESCRIPTION OF ROAD.		
Main line of road from Nashua to Lowell	14.500 miles.	
“ “ in New Hampshire	5.250 “	
“ “ in Massachusetts	9.250 “	
Double track on main line	14.500 “	
Same in New Hampshire	5.250 “	
Total road belonging to this company	14.500 “	
Sidings and other tracks not above enumerated	6.084 “	
Same in New Hampshire	1.950 “	
Total length of track computed as single track	35.084 “	
Same in New Hampshire	12.450 “	

CAPITAL STOCK.		
Capital stock authorized by charter	\$800,000	
Capital stock issued (number of shares, 8,000); amount paid in		\$800,000.00
Total amount paid in (as per books of the company)		800,000.00

DEBT.	
Funded debt, as follows:	
Gold bonds due August 1, 1893; rate of interest, 6 per cent	\$200,000.00
Interest paid on same during year . . . \$12,000.00	
Bonds due July 1, 1900; rate of interest, 5 per cent	100,000.00
Interest paid on same during year . . . \$5,000.00	

NAMES AND RESIDENCES OF OFFICERS.

Francis A. Brooks, *President*, Boston, Mass.; J. W. White, *Treasurer*, Nashua, N. H.; Walter A. Lovering, Nashua, N. H., *Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Francis A. Brooks, Boston, Mass.; Gedney K. Richardson, Boston, Mass.; Jeremiah W. White, Nashua, N. H.; William W. Bailey, Nashua, N. H.; A. M. Shaw, Lebanon, N. H.

PROPER ADDRESS OF THE COMPANY:

NASHUA & LOWELL RAILROAD CORPORATION.

NASHUA, N. H.

J. W. WHITE,
Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. February 5, 1889. Then personally appeared J. W. White and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOSEPH L. CLOUGH, *Justice of the Peace.*

REPORT

OF THE

PORTSMOUTH & DOVER RAILROAD COMPANY*

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$46,140.00
Net income	46,140.00
Dividends declared (6 per cent)	46,140.00
ANALYSIS OF EARNINGS.	
Rents for use of road	\$46,140.00
Total income from all sources	46,140.00
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$768,400.00
Total permanent investments	\$768,400.00
Cash	\$3,324.97
Bills receivable	600.00
Total cash assets	3,924.97
Total assets (as per books of the company)	\$772,324.97

*The Portsmouth & Dover Railroad is leased to the Eastern Railroad in New Hampshire at 6 per cent on \$769,000 per annum.

LIABILITIES.	
Capital stock	\$769,000.00
Unfunded debt, viz. :	183.00
Dividends unpaid	\$183.00
Profit and loss balance	3,141.97
Total liabilities (as per books of the company)	\$772,324.97
DESCRIPTION OF ROAD.	
Main line of road from Portsmouth to Dover . .	10.88 miles.
" " in New Hampshire	10.88 "
Total road belonging to this company	10.88 "
Sidings and other tracks not above enumerated . .	1.85 "
Same in New Hampshire	1.85 "
Total length of track, computed as single track . .	12.73 "
Same in New Hampshire	12.73 "
Total length of steel rails in tracks, not including steel-top rails	5.12 "
[Weight per yard, 58 and 60 lbs.]	
Number of stations in New Hampshire on all roads operated by this company	5
Number of stations on all roads owned by this company	5
Same in New Hampshire	5
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 94 ft.	
Number of spans of timber bridges of 25 feet and upwards*	7
Aggregate length of same for single track 620 ft.	
Number of crossings of highways at grade*	10
" " " over railroad	1
Number of highway bridges less than 18 feet above track	1
Number of crossings at which gates or flagmen are maintained	4
Number of crossings at which there are neither signals nor flagmen*	6
CAPITAL STOCK.	
Capital stock authorized by charter	\$769,000
Capital stock authorized by votes of company	769,000

* In New Hampshire, on miles of road owned.

Capital stock issued (number of shares, 7,690);	
amount paid in	\$769,000.00
Total amount paid in (as per books of the company)	769,000.00
Total number of stockholders	149
Number of stockholders in New Hampshire	138
Amount of stock held in New Hampshire	\$753,600

NAMES AND RESIDENCES OF OFFICERS.

Frank Jones, *President*, Portsmouth, N. H.; George L. Treadwell, *Treasurer*, Portsmouth, N. H.; Calvin Page, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Frank Jones, Daniel Marcy, Joseph A. Walker, George E. Hodgdon, Portsmouth, N. H.; Joseph D. Guppy, Frank A. Christie, George G. Lowell, Dover, N. H.

PROPER ADDRESS OF THE COMPANY:

PORTSMOUTH & DOVER RAILROAD,
PORTSMOUTH, N. H.

FRANK JONES, *President*.
GEORGE L. TREADWELL,
Treasurer.

STATE OF NEW HAMPSHIRE.

ROCKINGHAM, ss. February 9, 1889. Then personally appeared Frank Jones, president of the Portsmouth & Dover Railroad, and George L. Treadwell, its treasurer, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

CALVIN PAGE, *Justice of the Peace*.

REPORT

OF THE

PORTSMOUTH, GREAT FALLS & CON- WAY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$72,036.47
Net income	72,036.47
Interest on funded debt	45,000.00
Dividends declared ($4\frac{1}{2}$ per cent) on 5,990 shares	26,955.00
Balance of 5,113 shares held by trustees Eastern R. R. on which no dividend is payable.	
Balance for the year	81.47
Balance at commencement of year	789.65
Balance September 30, 1888	871.12
ANALYSIS OF EARNINGS.	
Rents for use of road	\$45,000.00
Income from all other sources, viz.:	27,036.47
Interest on deposit at bank	\$81.47
Dividend on 5,990 shares at $4\frac{1}{2}$ per cent, 26,955.00	
Total income from all sources	\$72,036.47
ANALYSIS OF EXPENSES.	
Leased to the Eastern Railroad and by that road to the Boston & Maine, the rental for which (\$45,000 per annum) pays the interest on its funded debt of \$1,000,000.	

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$2,086,250.00	
Cost of equipment	64,050.00	
Total permanent investments		\$2,150,300.00
Cash		2,626.12
Total assets (as per books of the company)		\$2,152,926.12

LIABILITIES.

Capital stock		\$1,150,300.00
Funded debt		1,000,000.00
Unfunded debt, viz. :		1,755.00
Interest unpaid	\$1,552.50	
Dividends unpaid	202.50	
Profit and loss balance		871.12
Total liabilities (as per books of the company)		\$2,152,926.12

DESCRIPTION OF ROAD.

Main line of road from Conway Junction to North Conway	72.86 miles
Main line of road in New Hampshire	69.94 "
" " in Maine	2.92 "
Total road belonging to this company	72.86 "
Sidings and other tracks not above enumerated	11.18 "
Same in New Hampshire	9.54 "
Total length of track, computed as single track	84.04 "
Same in New Hampshire	79.48 "
Total length of steel rails in tracks, not including steel-top rails	49.45 "
[Weight per yard, 58 and 60 lbs.]	
Number of stations on all roads owned by this company	18
Same in New Hampshire	17

EQUIPMENT.

This road owns a small amount of equipment which is included in the lease, the detail of which is shown by the reports of the Boston & Maine.

BRIDGES.	
Number of trestle bridges of 25 feet length and upwards*	11
Aggregate length of same for single track, 3,449 ft.	
Number of spans of iron bridges of 25 feet and upwards*	8
Aggregate length of same for single track, 626 ft.	
Number of spans of timber bridges of 25 feet and upwards*	10
Aggregate length of same for single track, 512 ft.	
Number of crossings of highways at grade*	68
" " " over railroad	3
" " " under " "	5
Number of highway bridges 18 feet above track	1
" " " less than 18 feet above track	2
Number of crossings at which gates or flagmen are maintained	3
Number of railroad crossings at which there are neither signals nor flagmen*	65
Number of railroad crossings at grade:*	1
Portland & Rochester R. R., at Rochester.	
Number of railroad crossings under other railroads:*	1
Boston & Maine R. R., W. Div., at Salmon Falls.	
CAPITAL STOCK.	
Capital stock authorized by votes of company	\$1,150,300
Capital stock issued (number of shares, 11,503); amount paid in	\$1,150,300.00
Total amount paid in (as per books of the company)	1,150,300.00
Total number of stockholders	371
Number of stockholders in New Hampshire	52
Amount of stock held in New Hampshire	\$78,800
DEBT.	
Funded debt as follows:	
Bonds due June 1, 1937; rate of interest, $4\frac{1}{2}$ per cent per annum	\$1,000,000.00
Interest on same during year	\$45,000
Total amount of funded debt	1,000,000.00

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF OFFICERS.

Samuel C. Lawrence, *President*, Medford, Mass.; Edward Lesley, *Treasurer*, Newburyport, Mass.; Wallace Hackett, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel C. Lawrence, Medford, Mass.; Walter Hunnewell, Boston, Mass.; Frank Jones, Portsmouth, N. H.; John W. Sanborn, Wakefield, N. H.; Ebenezer G. Wallace, Rochester, N. H.

PROPER ADDRESS OF THE COMPANY:

PORTSMOUTH, GREAT FALLS & CONWAY RAILROAD.

TREASURER'S OFFICE EASTERN RAILROAD.

CAUSEWAY STREET, BOSTON, MASS.

SAMUEL C. LAWRENCE,
FRANK JONES,
WALTER HUNNEWELL,
JOHN W. SANBORN,

Directors.

EDWARD LESLEY,

Treasurer.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, SS. BOSTON, December 4, 1888. Then personally appeared, November 28, 1888, Samuel C. Lawrence, December 1, 1888, John W. Sanborn, December 3, 1888, Frank Jones, Walter Hunnewell, and Edward Lesley, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

C. E. A. BARTLETT, *Justice of the Peace.*

REPORT

OF THE

WEST AMESBURY BRANCH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$5,700.00
Total expense (including taxes)	777.36
Net income	4,922.64
Interest accrued during year:	3,990.00
On funded debt \$3,990.00	
Dividends declared (1½ per cent)	855.00
Balance for the year	77.64
Balance at commencement of year \$220.05	
Balance at commencement of year as so changed	220.05
Balance September 30, 1888 (surplus)	297.69
ANALYSIS OF EARNINGS.	
Rents for use of road	\$5,700.00
Total income from all sources	5,700.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$50.00
Taxes, state	727.36
Total operating expenses and taxes	\$777.36

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$114,000.00	
Total permanent investments		\$114,000.00
Cash	\$346.69	
Total cash assets		346.69
Total assets (as per books of the company)		\$114,346.69

LIABILITIES.

Capital stock		\$57,000.00
Funded debt		57,000.00
Unfunded debt, viz:		49.00
Interest unpaid	\$14.00	
Dividends unpaid	35.00	
Profit and loss balance		297.69
Total liabilities (as per books of the company)		\$114,346.69

DESCRIPTION OF ROAD.

Main line of road	4.45 miles.
“ “ in Massachusetts	2.13 “
“ “ in New Hampshire	2.32 “
Sidings and other tracks not above enumerated . . . . .	.49 “
Same in New Hampshire . . . . .	.38 “
Total length of track, computed as single track	4.94 “
Same in New Hampshire	2.70 “
Number of stations on all roads owned by this company	2
Same in New Hampshire	1

CAPITAL STOCK.

Capital stock authorized by charter	\$150,000	
Capital stock authorized by votes of company	114,000	
Capital stock issued (number of shares, 570); amount paid in		\$57,000.00
Total amount paid in, as per books of the company		57,000.00
Total number of stockholders	30	
Number of stockholders in New Hampshire	3	
Amount of stock held in New Hampshire	\$15,800	

Funded debt, as follows:

Bonds due July 1, 1893; rate of interest, 7 per cent	\$57,000.00
Interest paid on same during year	\$3,990.00
Total amount of funded debt	57,000.00

NAMES OF OFFICERS.

W. H. Haskell, *President*; Daniel J. Poore, *Treasurer and Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

William H. Haskell, Benjamin F. Sargent, Albert Sargent, John Cleany (deceased), Merrimac, Mass.; E. R. Brown, Dover, N. H.

PROPER ADDRESS OF THE COMPANY:

WEST AMESBURY BRANCH RAILROAD COMPANY,
MERRIMAC, MASS.

WILLIAM H. HASKELL,
ALBERT SARGENT,
Directors.
DANIEL J. POORE,
Treasurer.

STATE OF MASSACHUSETTS.

ESSEX, ss. February 12, 1889. Then personally appeared Daniel J. Poore, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

O. E. LITTLE, *Notary Public*.

ESSEX, ss. February 12, 1889. Then personally appeared William H. Haskell and Albert Sargent, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

D. J. POORE, *Justice of the Peace*.

REPORT

OF THE

WOLFEBOROUGH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$2,190.00
Net income	2,190.00
Dividends declared (6 per cent) on 365 shares . .	2,190.00
Balance of 3,490 shares held by trustees of Eastern Railroad on which no dividend is payable.	
ANALYSIS OF EARNINGS.	
Rents for use of road	\$2,190.00
Total income from all sources	2,190.00
ANALYSIS OF EXPENSES.	
Leased to the Eastern Railroad Company for annual rental of \$6 per share per annum, payable semi-annually, and included in the Eastern's lease to the Boston & Maine on same terms.	
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$385,500.00
Total assets (as per books of the company) . .	\$385,500.00

LIABILITIES.	
Capital stock	\$385,500.00
Total liabilities (as per books of the company)	385,500.00
DESCRIPTION OF ROAD.	
Main line of road from Wolfborough Junction to Wolfborough	12.03 miles.
Main line of road in New Hampshire	12.03 "
Total road belonging to this company	12.03 "
Sidings and other tracks not above enumerated . . . . .	.80 "
Same in New Hampshire . . . . .	.80 "
Total length of track, computed as single track	12.83 "
Same in New Hampshire	12.83 "
Number of stations on all roads owned by this com- pany	4
Same in New Hampshire	4
STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.	
See report of Boston & Maine R. R.	
BRIDGES.	
Number of trestle bridges of 25 feet length and up- wards*	5
Aggregate length of same for single track 383 ft.	
Number of spans of timber bridges of 25 feet and upwards*	2
Aggregate length of same for single track 62 ft.	
Number of crossings of highways at grade*	11
Number of crossings at which there are neither sig- nals nor flagmen*	11
CAPITAL STOCK.	
Capital stock authorized by votes of company	\$385,500
Capital stock issued (number of shares, 3,855); amount paid in	\$385,500.00
Total amount paid in (as per books of the company)	385,500.00
Total number of stockholders	83
Number of stockholders in New Hampshire	64
Amount of stock held in New Hampshire	\$28,100

* On miles of road owned in New Hampshire.

NAMES AND RESIDENCES OF OFFICERS.

Samuel C. Lawrence, *President*, Medford, Mass. ; Edward Lesley, *Treasurer*, Newburyport, Mass. ; John L. Peavey, *Clerk of Corporation*, Wolfeborough, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel C. Lawrence, Medford, Mass. ; Walter Hunnewell, Boston, Mass. ; Frank Jones, Portsmouth, N. H. ; John W. Sanborn, Wakefield, N. H. ; Joseph L. Avery, Blake Folsom, Wolfeborough, N. H. ; Amos Paul, South Newmarket, N. H.

PROPER ADDRESS OF THE COMPANY :

WOLFEBOROUGH RAILROAD,

TREASURER'S OFFICE EASTERN RAILROAD, BOSTON, MASS.

SAMUEL C. LAWRENCE,
FRANK JONES,
WALTER HUNNEWELL,
JOHN W. SANBORN,
AMOS PAUL,

Directors.

EDWARD LESLEY,

Treasurer.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, December 4, 1888. Then personally appeared, November 28, 1888, Samuel C. Lawrence, December 1, 1888, John W. Sanborn, Amos Paul, December 3, 1888, Frank Jones, Walter Hunnewell, and Edward Lesley, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

C. E. A. BARTLETT, *Justice of the Peace.*

REPORT

OF THE

WORCESTER, NASHUA & ROCHESTER RAILROAD COMPANY*

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$250,000.00
Total expense (including taxes)	2,032.73
Net income	247,967.27
Interest accrued during year	85,169.23
On funded debt \$70,750.00	
On other debt 14,419.23	
Dividends declared (6 per cent)	183,834.00
Balance for the year (deficit)	21,035.96
Balance at commencement of year \$162,321.10	
Add:	
Old claims on account of personal injuries 3,699.00	
Other old claims, rebates on freight 4,994.62	
Balance at commencement of year as so changed	171,014.72
Balance September 30, 1888 (deficit)	192,050.68
ANALYSIS OF EARNINGS.	
Rents for use of road	\$250,000.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,325.00
Stationery and printing	105.01
Advertising	90.10
Contingencies and miscellaneous	512.62

* The railroad of this company is leased to the Boston & Maine Railroad.

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$4,138,584.99	
Cost of equipment	415,336.03	
Total permanent investments		\$4,553,921.02
Cash	\$25,704.57	
Due from agents and companies	62,865.37	
Worcester, Nashua & Rochester Railroad stock	35,300.00	
Total cash assets		123,869.94
Profit and loss balance		192,050.68
Total assets (as per books of the company)		\$4,869,841.64

LIABILITIES.

Capital stock		\$3,097,800.00
Funded debt		1,457,000.00
Unfunded debt, viz.:		313,041.64
Interest unpaid	\$15,041.64	
Notes payable	298,000.00	
Total liabilities (as per books of the company)		\$4,869,841.64

DESCRIPTION OF ROAD.

Main line of road from Worcester to Rochester	94.48 miles.
“ “ in New Hampshire	55.02 “
“ “ in Massachusetts	39.46 “
Double track on main line	18.13 “
Total road belonging to this company	94.48 “
Sidings and other tracks not above enumerated	29.47 “
Same in New Hampshire	13.00 “
Total length of track, computed as single track	142.08 “
Same in New Hampshire	68.02 “
Total length of steel rails in tracks, not including steel-top rails	89.00 “
[Weight per yard, 59 and 60 lbs.]	

EQUIPMENT.

The rolling stock owned by this company is leased to the Boston & Maine Railroad, and will be embraced in their return.

* On miles of road owned in New Hampshire.

Interest paid on same	\$18,275.00	
Mortgage bonds due July 1, 1906; rate of interest, $\frac{1}{2}$ per cent		\$150,000.00
Interest paid on same	\$6,000.00	
Total amount of funded debt		\$1,457,000.00

NAMES AND RESIDENCES OF OFFICERS.

Charles A. Sinclair, *President*, Portsmouth, N. H.; E. B. Stoddard, *Auditor*, Worcester, Mass.; T. W. Hammond, *Treasurer* and *Clerk of Corporation*, Worcester, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Charles A. Sinclair and Frank Jones, Portsmouth, N. H.; James P. Cook, Salem, Mass.; George W. Armstrong, Brookline, Mass.; George C. Lord, Newton, Mass.; E. B. Stoddard, Worcester, Mass.; Charles Holman, Frank A. McKean, John A. Spalding, Nashua, N. H.

PROPER ADDRESS OF THE COMPANY:

WORCESTER, NASHUA & ROCHESTER RAILROAD
COMPANY,

WORCESTER, MASS.

CHARLES A. SINCLAIR,

President.

JAMES P. COOK,

J. A. SPALDING,

CHARLES HOLMAN,

FRANK A. MCKEAN,

Directors.

T. W. HAMMOND,

Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. February 12, 1889. Then personally appeared Frank A. McKean, Charles Holman, and J. A. Spalding, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

W. E. SPALDING, *Justice of the Peace.*

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. February 8, 1889. Then personally appeared Charles A. Sinclair, James P. Cook, and T. W. Hammond, and severally made oath that the foregoing statement by them subscribed is true, according to their best knowledge and belief.

Before me,

HENRY P. GOOLD, *Justice of the Peace.*

REPORT

OF THE

CHESHIRE RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.

Total income		\$611,036.01
Total expense (including taxes)		417,272.78
Net income		193,763.23
Rentals:		51,000.00
Fitchburg R. R. for V. & M. Div.	\$51,000.00	
Interest accrued during year:		48,000.00
On funded debt	\$48,000.00	
Dividends declared (6 per cent)		126,000.00
Balance for the year (deficit)		31,236.77
Balance at commencement of year	\$89,791.75	
Balance at commencement of year as so changed		89,791.75
Balance September 30, 1888 (surplus)		58,554.98

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road)*	\$51,326.00
From through passengers (to and from other roads over and beyond this road)	123,555.77
From express and extra baggage	7,500.00
From mails	9,500.04
From other sources, passenger department	7,500.00
Total earnings from passenger department	199,381.81
From local freight (all freight starting from or stopping at any station on this road)*	22,912.56
From through freight (to and from other roads over and beyond this road)	364,525.95
Total earnings from freight department	387,438.51
Total transportation earnings	586,820.32

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz. :		\$24,215.69
Interest	\$12,355.51	
Rents of lands, houses, etc.	11,860.18	
Total income from all sources		\$611,036.01
ANALYSIS OF EXPENSES.		
Salaries of general officers and clerks		\$16,470.29
Legal expenses		252.50
Insurance		1,773.13
Stationery and printing		2,641.70
Outside agencies and advertising		4,438.04
Contingencies and miscellaneous		4,280.26
Repairs of bridges (including culverts and cattle- guards)		2,967.19
Repairs of buildings		9,747.84
Repairs of fences, road-crossings, and signs		1,324.73
Renewal of rails		6,635.34
[No. tons steel laid, 220.]		
Renewal of ties		11,801.70
[No. laid, 30,429.]		
Repairs of road-bed and track		37,772.23
Repairs of locomotives		23,382.67
Fuel for locomotives		84,538.89
[Tons of coal, 19,582; cords of wood, 630½.]		
Water supply		839.94
Oil and waste		5,555.34
Locomotive service*		35,987.14
Repairs of passenger cars		12,657.15
Passenger-train service*		10,830.22
Passenger-train supplies		913.01
Mileage passenger cars†		2,701.72
Repairs of freight cars		17,416.93
Freight-train service*		30,308.62
Freight-train supplies		1,622.12
Mileage freight cars†		20,200.99
Telegraph expenses		3,935.59
Loss and damage, freight and baggage		264.68
Loss and damage, property and cattle		90.00
Personal injuries		690.71
Agents' and station service*		31,818.78
Station supplies		5,652.25
Total operating expenses		\$389,511.70
Taxes, state		26,937.63
" local		823.45
Total operating expenses and taxes		\$417,272.78

*Salaries and wages.

† Debit balances.

PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Grading and masonry	\$1,500.00
Bridging	1,000.00
Superstructure, including rails	7,531.96
Land, land damages, and fences	3,361.72
Engine-houses, car-sheds, and turn-tables	2,201.28
Total for construction	\$15,594.96
One passenger car	5,000.00
Ten freight cars	4,000.00
Net additions to property accounts for the year	\$24,594.96

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.	
Cost of road and equipment	\$2,742,130.22
Total permanent investments	\$2,742,130.22
Cash	\$1,642.84
Bills receivable	224,017.19
Due from agents and companies	41,661.89
Materials and supplies	111,202.10
Total cash assets	378,524.02
Total assets (as per books of the company)	\$3,120,654.24

LIABILITIES.	
Capital stock	\$2,153,300.00
Funded debt	800,000.00
Unfunded debt, viz.:	108,799.26
Interest unpaid, (including Janu- ary, 1889, bond coupons)	\$25,470.00
Dividends unpaid	975.00
Notes payable	82,000.00
Vouchers and accounts	354.26
Profit and loss balance	58,554.98
Total liabilities (as per books of the company)	\$3,120,654.24

MILEAGE, TRAFFIC, ETC.	
Passenger-train mileage	165,653
Freight-train mileage	344,608
Total revenue train mileage	510,261

Total miles of road operated by this company	64.01 miles.
Total miles of road operated by this company in New Hampshire	42.81 "
Number of stations in New Hampshire on all roads operated by this company	14
Number of telegraph offices in same	10
Number of stations on all roads owned by this company	16
Same in New Hampshire	13
EQUIPMENT.	
Number of locomotives	30
Number of passenger cars	26
Number of baggage, mail, and express cars	11
Number of freight cars (basis of 8 wheels)	463
Number of other cars	32

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers								
Employés			1		1			
Others			2	1	2	1		

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

June 30, 1888.—Rev. C. H. Wheeler and wife, while crossing the railroad with team at state line station, were struck by freight train and killed.

July 12.—Mike Ready, while lying drunk on a pile of ashes at Fitzwilliam, had one foot over the track, which was cut off by passing freight train.

August 11.—Samuel Bergeon, brakeman, while switching train in Keene yard, stepped on opposite track in front of moving freight train, was run over and killed.

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	48 tons.
Average " " " "	34 "
Maximum weight of tenders full of fuel and water	25 "
Average " " " "	19 "
Maximum weight of passenger cars . . .	20 "
Average " " " "	18 "
" " mail and baggage cars . . .	13½ "
" " 8-wheel box freight cars . . .	9½ "
" " 8-wheel platform cars . . .	7½ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46½ feet.
Total length of heaviest engine and tender over all	55 "
Number of locomotives equipped with train brake . [Kind of brake, Westinghouse.]	8
Number of cars equipped with train brake . . . [Kind of brake, Westinghouse.]	37
Number of passenger cars with Miller platform and buffer . . .	37
Number of miles of road operated by this company not furnished with telegraph facilities: . . .	15.82 miles.
From Peterborough, N. H., to Winchendon, Mass.	
Charges for the transportation of company's supplies included in earnings as reported for this road:	
Rate, ½ cent per ton per mile; number of tons carried, 16,840; amount credited to earnings, \$3,220.	
BRIDGES.	
Number of spans of stone bridges of 25 feet length and upwards *	1
Number of spans of iron bridges of 25 feet and upwards * . . .	2
Number of spans of timber bridges of 25 feet and upwards * . . .	11
Number of crossings of highways at grade * . . .	33
" " " over railroad . . .	6
" " " under " . . .	5
Number of highway bridges 18 feet above track . . .	8
Number of crossings at which gates or flagmen are maintained . . .	2
Number of crossings at which there are neither signals nor flagmen * . . .	31

* In New Hampshire, on miles of road owned.

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company *	3.500 cents.
Average rate of fare per mile received from passengers to and from other roads	3.400 "
Average rate of fare per mile for season-ticket passengers †	1.200 "
Average rate of fare per mile received from all passengers	2.900 "
Average rate of local freight per ton per mile *	5.000 "
Average rate of freight per ton per mile received from freight to and from other roads	1.700 "
Average rate of freight per ton per mile received from all freight	1.223 "

CAPITAL STOCK.

Total amount paid in (as per books of the company)	\$2,153,300.00
Total number of stockholders	465
Number of stockholders in New Hampshire	39
Amount of stock held in New Hampshire	\$380,400

DEBT.

Funded debt as follows :	
Bonds due July 1, 1896; rate of interest, 6 per cent	\$250,000.00
Interest paid on same during year	\$15,000.00
Bonds due July 1, 1898; rate of interest, 6 per cent	550,000.00
Interest paid on same during year	\$33,000.00
Total amount of funded debt	\$800,000.00

NAMES AND RESIDENCES OF OFFICERS.

William A. Russell, *President*, Boston, Mass. : Edward C. Thayer, *Vice-President*, Keene, N. H. : R. Stewart, *General Manager*, Keene, N. H. : J. W. Dodge, *General Freight Agent*, Keene, N. H. : F. H. Kingsbury, *General Passenger Agent and Treasurer*, Keene, N. H. : R. Stewart, *Clerk of Corporation*, Keene, N. H.

* Rates as per tariff.

† Reckoning twelve passengers per week for time of each season ticket.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

William A. Russell, George W. Russell, R. M. Pulsifer, H. W. Suter, Boston, Mass.; Edward C. Thayer, Keene, N. H.; A. B. Turner, Ashuelot, N. H.; William H. Hill, Jr., Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

CHESHIRE RAILROAD COMPANY,

KEENE, N. H.

WILLIAM A. RUSSELL,
EDWARD C. THAYER,
G. W. RUSSELL,
WILLIAM H. HILL,
H. W. SUTER,

Directors.

F. H. KINGSBURY,

Treasurer.

R. STEWART,

Superintendent.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. November 19, 1888. Then personally appeared William A. Russell, E. C. Thayer, H. W. Suter, William H. Hill, George W. Russell, R. Stewart, F. H. Kingsbury, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. M. WHEATON, *Justice of the Peace.*

REPORT

OF THE

MONADNOCK RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$12,000.00
Total expense (including taxes)	59.50
Net income	11,940.50
Rentals:	12,000.00
Cheshire Railroad Company	\$12,000.00
Interest accrued during year:	2,356.67
On funded debt	\$2,356.67
Dividends declared (5 per cent)	10,000.00
Balance for year (deficit)	416.17
Balance at commencement of year	\$123,619.24
Balance at commencement of year as so changed	123,619.24
Balance September 30, 1888 (deficit)	123,203.07
ANALYSIS OF EARNINGS.	
Rents for use of road	\$12,000.00
Total income from all sources	12,000.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$59.50
Total expenses	59.50
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$367,701.26
Stock of Monadnock Railroad Company (54 shares)	3,090.00
Total permanent investments	\$370,791.26

Cash	\$5,811.81	
Total cash assets		\$5,811.81
Total assets (as per books of the company)		\$376,603.07
LIABILITIES.		
Capital stock		\$205,400.00
Funded debt		48,000.00
Profit and loss balance		123,203.00
Total liabilities (as per books of the company)		\$376,603.00
Overdue interest		50.00
DESCRIPTION OF ROAD.		
Main line of road from Peterborough, N. H., to Winchendon, Mass.	15.800 miles.	
Main line of road in New Hampshire	13.762 "	
" " Massachusetts	2.038 "	
Total road belonging to this company	15.800 "	
Sidings and other tracks not above enumerated . . . . .	.700 "	
Total length of track computed as single track	16.500 "	
Same in New Hampshire	13.762 "	
Number of stations in New Hampshire on all roads operated by this company	4	
Number of stations on all roads owned by this company	5	
Same in New Hampshire	4	
GENERAL INFORMATION.		
Number of miles of road operated by this company not furnished with telegraph facilities:	15.800 miles.	
From Peterborough, N. H., to Winchendon, Mass.		
BRIDGES.		
Number of spans of timber bridges of 25 feet and upwards *	5	
Number of crossings of highways at grade *	16	
Number of crossings at which there are neither signals nor flagmen *	16	

* In New Hampshire, on miles of road owned.

CAPITAL STOCK.	
Capital stock authorized by charter . . .	\$350,000
Capital stock authorized by votes of company . . .	250,000
Capital stock issued (number of shares, 2,054); amount paid in . . .	\$205,400.00
Total amount paid in (as per books of the company)	205,400.00
Total number of stockholders . . .	5
Number of stockholders in New Hampshire . . .	3
Amount of stock held in New Hampshire	\$103,000
DEBT.	
Funded debt, as follows:	
First mortgage bonds, due July 1, 1897; rate of interest, 5 per cent . . .	\$48,000.00
Interest paid on same during year . . .	\$2,356.67
Total amount of funded debt . . .	48,000.00

NAMES AND RESIDENCES OF OFFICERS.

Henry K. French, *President*, Peterborough, N. H.; Peter Upton, *Auditor*, East Jaffrey, N. H.; John H. Cutler, *Treasurer and Clerk of Corporation*, Peterborough, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Henry K. French, Peterborough, N. H.; Rodney Wallace, Fitchburg, Mass.; Edward C. Thayer, Keene, N. H.; John H. Fairbank, Winchendon, Mass.; Peter Upton, East Jaffrey, N. H.; Oscar H. Bradley, East Jaffrey, N. H.; Elijah B. Phillips, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

MONADNOCK RAILROAD COMPANY,

PETERBOROUGH, N. H.

* In New Hampshire, on miles of road owned.

HENRY K. FRENCH,
President.

JOHN H. CUTLER,
Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. November 19, 1889. Then personally appeared Henry K. French and John H. Cutler, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

R. B. HATCH, *Justice of the Peace.*

REPORT

OF THE

LESSEES OF THE MONADNOCK RAIL-ROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$33,624.04
Total expense (including taxes)	27,778.88
Net income	5,845.16
Rentals for use of road	12,000.00
Balance for the year (deficit)	6,154.84
Balance at commencement of year	\$12,073.17
Add:	
Unsettled accounts	53.12
Balance at commencement of year as so changed	12,126.29
Balance September 30 1888 (deficit)	18,281.13

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *	\$4,826.27
From through passengers (to and from other roads over and beyond this road)	7,103.40
From express and extra baggage	1,000.00
From mails	708.84
Total earnings from passenger department	13,638.51
From local freight (all freight starting from or stopping at any station on this road) *	7,608.43
From through freight (to and from other roads over and beyond this road)	11,676.54
Total earnings from freight department	19,284.97
Total transportation earnings	32,923.48
Income from all other sources	700.56
Total income from all sources	\$33,624.04

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,200.00
Stationery and printing	300.00
Outside agencies and advertising	20.00
Repairs of bridges (including culverts and cattle- guards)	208.85
Repairs of buildings	350.76
Repairs of fences, road-crossings, and signs . .	32.00
Renewal of rails.* [No. tons steel laid, 76.]	
Renewal of ties	3,817.29
[No. laid, 10,676.]	
Repairs of road-bed and track	7,435.24
Repairs of locomotives	914.27
Fuel for locomotives	3,966.32
[Tons of coal, 844.]	
Water supply	54.00
Oil and waste	295.68
Locomotive service †	1,817.12
Repairs of passenger cars	635.53
Passenger-train service †	779.87
Passenger-train supplies	22.58
Repairs of freight cars	67.24
Freight-train service †	1,250.62
Mileage freight cars ‡	695.47
Telegraph expenses	21.00
Agents' and station service †	2,229.88
Station supplies	85.86
Total operating expenses	\$26,249.58
Taxes, state	1,497.70
" local	31.60
Total operating expenses and taxes	\$27,778.88
MILEAGE, TRAFFIC, ETC.	
Passenger-train mileage	17,987
Freight-train mileage	8,993
Total revenue train mileage	26,980
Total train mileage	26,980
Number of local passengers (including season) .	16,423
Number of through passengers (to and from other roads going over and beyond this road) . . .	13,428
Total number of passengers carried . . .	29,851
Local passenger mileage (local passengers carried one mile)	164,632

* Paid by old iron sold. † Salaries and wages. ‡ Debit balances.

Through passenger mileage (through passengers carried one mile)	161,328
Total passenger mileage	325,960
Number tons local freight	6,391
Number tons through freight (to and from other roads, going over and beyond this road)	28,630
Total number tons freight carried	35,021
Local freight mileage (tons local freight carried one mile)	77,324
Through freight mileage (tons through freight carried one mile) *	431,885
Total freight mileage	509,209
Average number of persons employed	25

GENERAL INFORMATION.

Number of miles of road operated by this company not furnished with telegraph facilities:	15.82 miles.
From Winchendon to Peterborough.	

RATES OF FARE.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	4.000 cents.
Average rate of fare per mile received from passengers to and from other roads	4.400 "
Average rate of fare per mile received from all passengers	3.660 "
Average rate of local freight per ton per mile †	8.000 "
Average rate of freight per ton per mile received from freight to and from other roads	2.720 "
Average rate of freight per ton per mile received from all freight	3.780 "

WILLIAM A. RUSSELL,

EDWARD C. THAYER,

G. W. RUSSELL,

WILLIAM H. HILL,

H. W. SUTER,

Directors.

F. H. KINGSBURY,

Treasurer.

R. STEWART,

Superintendent.

* Carried to and from other roads. † Rates as per tariff.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. November 19, 1888. Then personally appeared William A. Russell, E. C. Thayer, H. W. Suter, George W. Russell, William H. Hill, R. Stewart, F. H. Kingsbury, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. M. WHEATON, *Justice of the Peace.*

REPORT

OF THE

CONCORD RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$1,145,880.54
Total expense (including taxes)	955,095.57
Net income	190,784.97
Rentals:	39,700.00
Concord & Portsmouth R. R.	\$25,000.00
Suncook Valley R. R.	14,700.00
Manchester & Lawrence R. R. on account.	
Dividends declared (10 per cent)	150,000.00
Balance for the year (surplus)	1,084.97
Balance at commencement of year	215,462.62
Balance September 30, 1888	216,547.59
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$292,582.15
From through passengers (to and from other roads over and beyond this road)	97,460.56
From express and extra baggage	16,312.59
From mails	15,093.86
From other sources, passenger department	10,817.20
Total earnings from passenger department . .	432,266.36
From local freight (all freight starting from or stopping at any station on this road) *	416,901.13
From through freight (to and from other roads over and beyond this road)	287,821.22
Total earnings from freight department . . .	704,722.35
Total transportation earnings	1,136,988.71
Income from all other sources, viz.:	8,891.83
Rents	\$8,401.83
Interest	490.00
Total income from all sources	\$1,145,880.54

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$46,743.23
Legal expenses	9,575.43
Insurance	4,347.55
Stationery and printing	9,192.07
Outside agencies and advertising	903.99
Contingencies and miscellaneous	38,387.20
Repairs of bridges (including culverts and cattle-guards)	\$7,041.09
New bridges	4,105.62
	11,146.71
Repairs of buildings	\$30,354.01
New buildings	22,577.56
	52,931.57
Repairs of fences, road-crossings, and signs	3,259.70
Renewal of rails	82,929.38
[No. tons steel laid, 2,201.]	
[No. tons steel relaid, 237.]	
[No. tons iron laid, 361.]	
Renewal of ties	31,188.40
[No. laid, 48,327.]	
Repairs of road-bed and track	69,170.32
Repairs of locomotives	\$33,326.27
New locomotives	17,831.73
	51,158.00
Fuel for locomotives	107,538.39
[Tons of coal, 19,475; cords of wood, 4,967.]	
Water supply	8,419.71
Oil and waste	11,358.88
Locomotive service *	70,980.06
Repairs of passenger cars	\$27,914.54
New passenger cars	8,500.00
	36,414.54
Passenger-train service *	19,846.09
Passenger-train supplies	2,672.27
Repairs of freight cars	\$41,861.81
New freight cars	15,000.00
	56,861.81
Freight-train service *	55,348.02
Freight-train supplies	1,914.98
Mileage freight cars †	28,032.91
Telegraph expenses	1,530.63
Loss and damage, freight and baggage	224.06
Loss and damage, property and cattle	2,762.55
Personal injuries	3,225.15
Agents' and station service *	89,144.09
Station supplies	7,192.09
Total operating expenses	\$914,399.78

* Salaries and wages. † Debit balances.

Taxes, state	\$39,707.78
“ local	988.01
Total operating expenses and taxes	\$955,095.57

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment	\$1,500,000.00	
Rindge's wharf	51,507.72	
Nashua, Acton & Boston R. R.	30,000.00	
Manchester & Keene R. R.	168,518.40	
Suncook Valley R. R.	47,925.60	
Mount Washington R. R.	173.61	
Total permanent investments		\$1,798,125.33
Cash	\$97,484.99	
Bills receivable	8,500.00	
Materials and supplies	179,298.80	
Debit balances	545.00	
Total cash assets		285,828.79
Total assets (as per books of the company)		\$2,083,954.12

LIABILITIES.

Capital stock	\$1,500,000.00
Unfunded debt, viz. :	367,406.53
Dividends unpaid	\$77,594.50
Notes payable	182,500.00
Vouchers and accounts	107,312.03
Profit and loss balance	216,547.59
Total liabilities (as per books of the company)	\$2,083,954.12

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	327,047
Freight-train mileage	299,707
Total revenue train mileage	626,754
Switching-train mileage	315,944
Other train mileage	47,349
Total train mileage	990,047
Number of season-ticket passengers *	31,852
Number of local passengers (including season)	705,690

*Reckoning twelve passengers per week for time of each season ticket.

Number of through passengers (to and from other roads going over and beyond this road) . . .	145,071
Total number of passengers carried . . .	850,761
Local passenger mileage (local passengers carried one mile) . . .	13,610,645
Through passenger mileage (through passengers carried one mile) . . .	4,944,223
Total passenger mileage . . .	18,554,868
Number tons local freight . . .	643,089
Number tons through freight (to and from other roads going over and beyond this road) . . .	1,018,223
Total number tons freight carried . . .	1,661,312
Local freight mileage (tons local freight carried one mile) . . .	19,535,185
Through freight mileage (tons through freight carried one mile) * . . .	30,376,022
Total freight mileage . . .	49,911,207
Average number of persons employed . . .	896

DESCRIPTION OF ROAD.	
Main line of road from Concord to Nashua . . .	34.53 miles.
“ “ in New Hampshire . . .	34.53 “
Double track on main line . . .	34.53 “
Same in New Hampshire . . .	34.53 “
Branches owned by this company, viz.:	
Suncook to Hooksett (single track) . . .	2.50 “
Total length of branches owned by company . . .	2.50 “
Total length of branches owned by company in New Hampshire . . .	2.50 “
Total road belonging to this company . . .	37.03 “
Sidings and other tracks not above enumerated . . .	38.97 “
Same in New Hampshire . . .	38.97 “
Total length of track, computed as single track . . .	110.53 “
Same in New Hampshire . . .	110.53 “
Total length of steel rails in tracks, not including steel-top rails . . .	71.56 “
[Weight per yard, 60, 67, and 72 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Concord & Portsmouth R. R., length . . .	47.50 miles.
Suncook Valley R. R., length . . .	17.37 “
Manchester & North Weare R. R., length . . .	19.00 “
Nashua, Acton & Boston R. R., length . . .	20.83 “
Total length of above roads . . .	104.70 “
“ “ “ in New Hampshire . . .	88.44 “
“ “ “ in Massachusetts . . .	16.26 “
Nashua, Acton & Boston R. R. . .	16.26

* Carried to and from other roads.

Total miles of road operated by this company	141.73 miles.
Total miles of roads operated by this company in New Hampshire	125.47 "
Number of stations in New Hampshire on all roads operated by this company	41
Number of telegraph offices in same	17
Number of stations on all roads owned by this company	13
Same in New Hampshire	13
EQUIPMENT.	
Number of locomotives	47
“ passenger cars	35
“ parlor cars (pay car)	1
“ baggage, mail, and express cars	14
“ freight cars (basis of 8 wheels)	1,027
Number of other cars:	
Milk	3
Combination	6
Fuel and construction	6
Crane	2
Wrecking	1
Gauger	3

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

December 12, 1887. — James Stearns, in attempting to crawl under a coal train at Portsmouth, was run over and killed.

December 14. — Charles W. Paige, 14 years old, jumped on cars of a moving train at Manchester, fell off and was killed.

April 23, 1888. — Mrs. Sylvester Evans, while attempting to drive across the track at Epping, was struck by train and killed.

May 25. — W. D. Burnham, an insane person, jumped from moving train near Concord and was killed.

July 23. — Joseph Quinn, a young man 22 years old, supposed to have fallen asleep under a car at Manchester, was run over and killed.

July 31. — Joseph P. Mansur, an employé, while coupling cars at Concord, was run over and fatally injured.

August 13. — Chester M. Sprague, a car-coupler at Concord, supposed to have fallen from shifting engine, was run over and killed.

September 18. — The dead body of a man supposed to be Gaspar René was found near the track between the passenger station and car-house at Manchester, and is supposed to have been killed in attempting to jump from a freight train.

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	104,500 lbs.
Average " " " "	67,180 "
Maximum weight of tenders full of fuel and water	64,400 "
Average " " " "	43,361 "
Maximum weight of passenger cars	48,380 "
Average " " " "	38,628 "
" " mail and baggage cars	36,402 "
" " 8-wheel box freight cars	20,380 "
" " 8-wheel platform cars	16,050 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46 ft.
Total length of heaviest engine and tender over all	54 ft., 5 in.
Number of locomotives equipped with train brake .	24
[Kind of brake, Westinghouse, 23; Eames, 1.]	
Number of cars equipped with train brake	52
[Kind of brake, Westinghouse.]	
Number of passenger cars with Miller platform and buffer	59
Number of locomotives equipped with Judkins' train signal	22
Number of cars equipped with Judkins' train signal	50
Charges for the transportation of company's supplies only on freight coming from other roads included in earnings as reported for this road:	
Rate, 1½ cents per ton per mile. No separate account kept of tonnage and earnings on same.	
BRIDGES.	
Number of spans of iron bridges of 25 feet and upwards*	2
Aggregate length of same for double track 124 ft.	
" " " " triple track 115 ft.	
Number of spans of timber bridges of 25 feet and upwards*	8
Aggregate length of same for double track 1,466 ft.	
Number of crossings of highways at grade*	19
" " " " over railroad	5
" " " " under "	3
Number of highway bridges 18 feet above track . .	1
Number of highway bridges less than 18 feet above track	4
Number of crossings at which gates or flagmen are maintained	6
Number of crossings at which there are neither signals nor flagmen*	13

* In New Hampshire, on miles of road owned.

RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company: *	
Branches	2.50 cents.
Main line	2.00 "
Average rate of fare per mile received from passengers to and from other roads	1.97 "
Average rate of fare per mile for season-ticket passengers † . . . . .	.93 "
Average rate of fare per mile received from all passengers	2.08 "
Average rate of local freight per ton per mile *	2.13 "
Average rate of freight per ton per mile received from freight to and from other roads . . . . .	.95 "
Average rate of freight per ton per mile received from all freight	1.41 "
CAPITAL STOCK.	
Capital stock authorized by charter . . . \$500,000	
Capital stock authorized by votes of company 1,000,000	
Capital stock issued (number of shares, 30,000); amount paid in	\$1,500,000.00
Total amount paid in (as per books of the company)	1,500,000.00
Total number of stockholders 1,103	
Number of stockholders in New Hampshire . . . 684	
Amount of stock held in New Hampshire \$1,121,000	

NAMES AND RESIDENCES OF OFFICERS.

Frederick Smyth, *President*, Manchester, N. H.; Horace E. Chamberlin, *Superintendent*, Concord, N. H.; Samuel Barrett, *General Freight Agent*, Concord, N. H.; Frank E. Brown, *General Passenger Agent*, Concord, N. H.; J. Frank Webster, *Cashier*, Concord, N. H.; Nathan Parker, *Treasurer*, Manchester, N. H.; William M. Chase, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Frederick Smyth, Manchester, N. H.; Josiah Minot, Concord, N. H.; Walter M. Parker, Manchester, N. H.; Alpha J. Pillsbury, Tilton, N. H.; Benjamin A. Kimball, John H. Pearson, John A. White, Concord, N. H.

* Rates as per tariff.

† Reckoning twelve passengers per week for time of each season ticket.

PROPER ADDRESS OF THE COMPANY:

CONCORD RAILROAD CORPORATION,

CONCORD, N. H.

FREDERICK SMYTH,
President.

NATHAN PARKER,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK and HILLSBOROUGH, ss. February 6, 1889. Then personally appeared Frederick Smyth, Nathan Parker, and H. E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

REPORT

OF THE

CONCORD & PORTSMOUTH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$25,000.00
Total expense (including taxes)	356.69
Net income	24,643.31
Dividends declared (7 per cent) on \$350,000	24,500.00
Balance for the year (surplus)	143.31
Balance at commencement of year	2,126.48
Balance September 30, 1888	2,269.79
ANALYSIS OF EARNINGS.	
Rents for use of road	\$25,000.00
Total income from all sources	25,000.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$350.00
Outside agencies and advertising	6.69
Total operating expenses and taxes	\$356.69
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$350,000.00
Total permanent investments	\$350,000.00
Cash	\$2,269.79
Total cash assets	2,269.79
Total assets (as per books of the company)	\$352,269.79

LIABILITIES.	
Capital stock	\$350,000.00
Profit and loss balance	2,269.79
Total liabilities (as per books of the company)	\$352,269.79
MILEAGE, TRAFFIC, ETC.	
Included in Concord Railroad report.	
DESCRIPTION OF ROAD.	
Main line of road from Manchester to Portsmouth .	40.50 miles.
“ “ in New Hampshire	40.50 “
Branches owned by the company, viz. :	
Concord to Suncook (single track)	7.00 “
Total length of branches owned by company . . .	7.00 “
Total length of branches owned by company in New Hampshire	7.00 “
Total road belonging to this company	47.50 “
Sidings and other tracks not above enumerated . .	8.68 “
Same in New Hampshire	8.68 “
Total length of track, computed as single track . .	56.18 “
Same in New Hampshire	56.18 “
Total length of steel rails in tracks, not including steel-top rails	41.79 “
[Weight per yard, 56 to 72 lbs.]	
Number of stations in New Hampshire on all roads operated by this company	15
Number of telegraph offices in same	5
Number of stations on all roads owned by this company	17
Same in New Hampshire	17
LIST OF ACCIDENTS.	
Included in Concord Railroad report.	
BRIDGES.	
Number of spans of timber bridges of 25 feet and upwards *	6
Aggregate length of same for single track 291 ft.	
Number of crossings of highways at grade * . . .	52

* In New Hampshire, on miles of road owned.

Number of crossings of highways over railroad . . .	4
Number of highway bridges 18 feet above track . .	2
Number of highway bridges less than 18 feet above track	2
Number of crossings at which gates or flagmen are maintained	1
Number of crossings at which there are neither signals nor flagmen *	51
Number of railroad crossings at grade : *	3
Eastern R. R., at Portsmouth.	
Worcester, Nashua & Rochester R. R., at Epping.	
Boston & Maine R. R., at Newmarket Junction.	

RATES OF FARE, ETC.

Included in Concord Railroad report.

CAPITAL STOCK.

Capital stock authorized by charter . . .	\$500,000	
Capital stock authorized by votes of company	350,000	
Capital stock issued (number of shares, \$3,500) ; amount paid in		\$350,000.00
Total number of stockholders	226	
Number of stockholders in New Hampshire . .	197	
Amount of stock held in New Hampshire	\$317,900	

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H. ; Horace E. Chamberlin, *Superintendent*, Concord, N. H. ; Samuel Barrett, *General Freight Agent*, Concord, N. H. ; Frank E. Brown, *General Passenger Agent*, Concord, N. H. ; W. Byron Stearns, *Treasurer*, Manchester, N. H. ; William H. Hackett, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Manchester, N. H. ; Walter M. Parker, Manchester, N. H. ; Moody Currier, Manchester, N. H. ; John J. Pickering, Portsmouth, N. H. ; Joseph B. Walker, Concord, N. H. ; William A. Pierce, Greenland, N. H. ; John J. Bell, Exeter, N. H.

* On miles of road owned in New Hampshire.

PROPER ADDRESS OF THE COMPANY:

CONCORD & PORTSMOUTH RAILROAD,

CONCORD, N. H.

S. N. BELL,
President.

W. BYRON STEARNS,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK and HILLSBOROUGH, ss. February 5, 1889. Then personally appeared Samuel N. Bell, W. Byron Stearns, and Horace E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

REPORT

OF THE

MANCHESTER & NORTH WEARE RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$38,406.20
Total expense (including taxes)	52,618.50
Balance for the year (deficit)	14,212.30
Balance at commencement of year \$17,091.59	
Balance at commencement of year as so changed	17,091.59
Balance September 30, 1888 (surplus)	2,879.29
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$15,163.36
From express and extra baggage	1,249.94
From mails	4,731.77
From other sources, passenger department	1,431.76
Total earnings from passenger department	22,576.83
From local freight (all freight starting from or stopping at any station on this road) *	15,829.37
Total earnings from freight department	15,829.37
Total transportation earnings	38,406.20
Total income from all sources	\$36,406.20
ANALYSIS OF EXPENSES.	
Outside agencies and advertising	\$4.50
Contingencies and miscellaneous . . . . .	.70
Repairs of bridges (including culverts and cattle-guards)	530.15

* Including passengers and freight to and from other roads, starting from or stopping at stations on this road.

Repairs of buildings	\$705.73
Repairs of fences, road-crossings, and signs	1,298.78
Renewal of rails	4,375.76
[No. tons steel laid, 564.]	
[No. tons iron laid, 102.]	
Renewal of ties	4,993.73
[No. laid, 9,519.]	
Repairs of road-bed and track	9,753.91
Use of locomotives (from March 1, 1883, to September 30, 1888)	15,102.00
Fuel for locomotives	4,882.95
[Tons of coal, 55; cords of wood, 1,269.]	
Water supply	36.42
Locomotive service*	1,721.95
Passenger-train service*	996.38
Mileage passenger cars †	1,989.91
Freight-train service*	996.42
Mileage freight cars †	1,415.21
Loss and damage, property and cattle	20.00
Agents' and station service*	2,685.65
Station supplies	74.75
Total operating expenses	\$51,584.90
Taxes, state	1,033.60
Total operating expenses and taxes	\$52,618.50

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	13,995
Freight-train mileage	13,188
Total revenue train mileage	27,183
Other train mileage	114
Total train mileage	27,297
Total number of passengers carried	54,333
Local passenger mileage (local passengers carried one mile)	534,024
Total passenger mileage	534,024
Number tons local freight	24,111
Total number tons freight carried	24,111
Local freight mileage (tons local freight carried one mile)	257,643
Total freight mileage	257,643
Average number of persons employed	28

* Salaries and wages.

† Debit balances.

DESCRIPTION OF ROAD.	
Main line of road from Manchester to North Weare	19.00 miles.
“ “ in New Hampshire	19.00 “
Total road belonging to this company	19.00 “
Sidings and other tracks not above enumerated . .	1.50 “
Same in New Hampshire	1.50 “
Total length of track, computed as single track .	20.50 “
Same in New Hampshire	20.50 “
Total length of steel rails in tracks, not including steel-top rails	5.22 “
[Weights per yard, 60, 67, and 72 lbs.]	
Total miles of road operated by this company .	19
Total miles of road operated by this company in New Hampshire	19
Number of stations in New Hampshire on all roads operated by this company	9
Number of telegraph offices in same	4
Number of stations on all roads owned by this company	9
Same in New Hampshire	9
BRIDGES.	
Number of spans of timber bridges of 25 feet and upwards*	13
Aggregate length of same for single track 1,273 ft.	
Number of crossings of highways at grade* . . .	20
“ “ “ under railroad	1
Number of crossings at which there are neither signals nor flagmen*	20
RATES OF FARE, ETC.	
Average rate of fare per mile received from all passengers	2.84 cents.
Average rate of freight per ton per mile received from all freight	6.14 “
CAPITAL STOCK.	
Capital stock authorized by charter	\$200,000.00

NAMES AND RESIDENCES OF OFFICERS.

Horace E. Chamberlin, *Superintendent*, Concord, N. H.; Josiah Carpenter, *Treasurer*, Manchester, N. H.; N. Parker Hunt, *Clerk of Corporation*, Manchester, N. H.

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Eliphalet S. Nutter, Concord, N. H. ; Charles Chase, Manchester, N. H. ; Edward C. Shirley, Goffstown, N. H. ; Benjamin A. Kimball, Concord, N. H. ; William J. Hoyt, Horace P. Watts, Manchester, N. H.

PROPER ADDRESS OF THE COMPANY :

MANCHESTER & NORTH WEARE RAILROAD,
MANCHESTER N. H.

JOSIAH CARPENTER,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, SS. February 20, 1889. Then personally appeared Josiah Carpenter and Horace E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

REPORT

OF THE

NASHUA, ACTON & BOSTON RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Interest accrued during year:	\$30,000.00
On funded debt \$30,000.00	
Balance for the year (deficit)	30,000.00
Balance at commencement of year \$429,194.09	
Balance at commencement of year as so changed	429,194.09
Balance September 30, 1888 (deficit)	459,194.09
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road \$1,057,031.20	
Total permanent investments	\$1,057,031.20
Total cash assets	6,257.41
Profit and loss balance	459,194.29
Total assets (as per books of the company)	\$1,522,482.90
LIABILITIES.	
Capital stock	\$500,000.00
Funded debt	500,000.00
Unfunded debt, viz.:	522,482.90
Interest unpaid \$416,973.00	
Notes payable 105,509.90	
Total liabilities (as per books of the company)	\$1,522,482.90

DESCRIPTION OF ROAD.	
Main line of road from Nashua, N. H., to North Acton, Mass.	20.83 miles.
Main line of road in New Hampshire	4.57 "
" " Massachusetts	16.26 "
Total road belonging to this company	20.83 "
Sidings and other tracks not above enumerated	3.27 "
Same in New Hampshire	1.59 "
Total length of track, computed as single track	24.10 "
Same in New Hampshire	6.16 "
Total length of steel rails in tracks, not including steel-top rails	6.44 "
[Weight per yard, 67 lbs.]	
Number of stations in New Hampshire on all roads operated by this company	1
Number of telegraph offices in same	1
Number of stations on all roads owned by this company	7
Same in New Hampshire	1
Number of crossings at which gates or flagmen are maintained	1
Number of crossings at which there are neither signals nor flagmen *	19
Number of railroad crossings at grade : *	1
Boston & Lowell Railroad, at Nashua.	
CAPITAL STOCK.	
Capital stock authorized by charter . . . \$600,000	
Capital stock authorized by votes of company 500,000	
Capital stock issued (number of shares, 4,981); amount paid in	\$498,100.00
Capital stock paid in on shares not issued (number of shares, 19)	1,900.00
Total amount paid in (as per books of the company)	500,000.00
Total number of stockholders 184	
Number of stockholders in New Hampshire . . . 86	
Amount of stock held in New Hampshire \$402,800	
DEBT.	
Funded debt, as follows :	
First mortgage bonds due 1896 ; rate of interest, 6 per cent	\$500,000.00

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF OFFICERS.

John C. Moulton, *President*, Laconia, N. H.; Frank D. Cook, *Treasurer*, Nashua, N. H.; Harry M. Cavis, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

John C. Moulton, Laconia, N. H.; Frederick Smyth, Manchester, N. H.; Benjamin A. Kimball, Concord, N. H.; John H. Pearson, Concord, N. H.; George A. Wason, Nashua, N. H.; Josiah M. Fletcher, Nashua, N. H.; Edward H. Spaulding, Wilton, N. H.; Elbridge P. Brown, Nashua, N. H.; Daniel R. Marshall, Nashua, N. H.; Charles Williams, Manchester, N. H.; Joseph L. Stevens, Manchester, N. H.; Joseph H. Wiggin, Manchester, N. H.

PROPER ADDRESS OF THE COMPANY:

NASHUA, ACTON & BOSTON RAILROAD COMPANY,
NASHUA, N. H.

F. D. COOK,

Treasurer.

H. E. CHAMBERLIN,

Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. February 5, 1889. Then personally appeared Horace E. Chamberlin, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

HILLSBOROUGH, ss. February 13, 1889. Then personally appeared F. D. Cook and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE F. HAMMOND, *Justice of the Peace.*

REPORT

OF THE

SUNCOOK VALLEY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$14,700.00
Total expense (including taxes)	280.75
Net income	14,419.25
Dividends declared (6 per cent) on \$240,000	14,400.00
Balance for the year (surplus)	19.25
Balance at commencement of year	144.31
Balance September 30, 1888 (surplus)	163.56
ANALYSIS OF EARNINGS.	
Rents for use of road	\$14,700.00
Total income from all sources	14,700.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$275.00
Contingencies and miscellaneous	5.75
Total operating expenses and taxes	\$280.75
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$348,199.19
Total permanent investments	\$348,199.19

Cash	\$2,360.37	
Total cash assets		\$2,360.37
Total assets (as per books of the company)		\$350,559.56

LIABILITIES.

Capital stock		\$341,700.00
Unfunded debt, viz.:		8,696.00
Aid or contribution	\$8,696	
Profit and loss balance		163.56
Total liabilities (as per books of the company)		\$350,559.56

DESCRIPTION OF ROAD.

Main line of road from Hooksett to Pittsfield	19.54	miles.
“ “ in New Hampshire	19.54	“
Total road belonging to this company	17.37	“
Sidings and other tracks not above enumerated	2.38	“
Same in New Hampshire	2.38	“
Total length of track, computed as single track	19.75	“
Same in New Hampshire	19.75	“
Total length of steel rails in tracks, not including steel-top rails	7.13	“
[Weight per yard, 67 lbs.]		
Number of stations in New Hampshire on all roads operated by this company	7	
Number of telegraph offices in same	2	
Number of stations on all roads owned by this company	7	
Same in New Hampshire	7	

LIST OF ACCIDENTS.

Included in Concord Railroad report.

BRIDGES.

Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 154 ft.	
Number of spans of timber bridges of 25 feet and upwards*	3
Aggregate length of same for single track 127½ ft.	

* On miles of road owned in New Hampshire.

Number of crossings of highways at grade* . . .	15
“ “ “ over railroad . . .	1
Number of highway bridges less than 18 feet above track . . .	1
Number of crossings at which there are neither signals nor flagmen*	15
<hr/>	
CAPITAL STOCK.	
Capital stock authorized by charter . . . \$500,000	
Capital stock authorized by votes of company . . . 500,000	
Capital stock issued (number of shares, 2,400); amount paid in	\$240,000.00
Capital stock paid in on shares, no dividend (number of shares, 1,017)	101,700.00
Total amount paid in (as per books of the company)	341,700.00
Total number of stockholders 136	
Number of stockholders in New Hampshire . . 132	
Amount of stock held in New Hampshire \$232,000	
Amount of stock held in New Hampshire, no dividend 98,700	

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H.; Horace E. Chamberlin, *Superintendent*, Concord, N. H.; James A. Weston, *Treasurer*, Manchester, N. H.; Bradbury P. Cilley, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Manchester, N. H.; William F. Head, Hooksett, N. H.; Reuben L. French, Pittsfield, N. H.; Charles H. Carpenter, Chichester, N. H.; Frederick Smyth, John C. French, Manchester, N. H.; Hiram A. Tuttle, Pittsfield, N. H.

PROPER ADDRESS OF THE COMPANY:

SUNCOOK VALLEY RAILROAD,
MANCHESTER, N. H.

* In New Hampshire, on miles of road owned.

S. N. BELL,
President.

JAMES A. WESTON,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK and HILLSBOROUGH, ss. February 5, 1889. Then personally appeared Samuel N. Bell, James A. Weston, and Horace E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

REPORT

OF THE

FITCHBURG RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$5,463,298.00
Total expense (including taxes)	4,196,604.99
Net income	1,266,693.01
Rentals:	281,280.00
Vermont & Mass. R. R. Co.	\$244,580.00
Boston & Albany R. R. Co.	5,100.00
Boston & Maine R. R.	3,600.00
Southern Vermont R. R.	12,000.00
Troy & Bennington R. R. Co.	15,400.00
Cheshire R. R. Co.	600.00
Interest accrued during year:	739,103.28
On funded debt	\$680,387.94
On other debt	58,715.34
Dividends declared (2 per cent)	261,835.60
Balance for the year (deficit)	15,525.87
Balance at commencement of year	\$281,674.87
Balance at commencement of year as so changed	281,674.87
Balance September 30, 1888 (surplus)	266,149.00
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$1,226,316.20
From through passengers (to and from other roads over and beyond this road)	459,113.58
From express and extra baggage	121,092.22

* Including passengers to and from other roads starting from or stopping at stations on this road.

From mails	\$43,653.98
From other sources, passenger department	30,732.88
Total earnings from passenger department	1,880,908.86
From local freight (all freight starting from or stopping at any station on this road)*	941,043.08
From through freight (to and from other roads over and beyond this road)	2,320,323.59
From other sources, freight department	51,045.09
Total earnings from freight department	3,312,411.76
Total transportation earnings	5,193,320.62
Rents for use of road	58,500.00
Income from all other sources, viz.:	211,477.38
Rent of property	\$38,926.73
Elevators and wharves, etc.	152,252.84
Interest and premiums	20,297.81
Total income from all sources	\$5,463,298.00

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$135,426.97
Legal expenses	15,970.82
Insurance	19,129.77
Stationery and printing	55,341.05
Outside agencies and advertising	73,813.67
Contingencies and miscellaneous	28,090.05
Repairs of bridges (including culverts and cattle- guards)	45,241.17
Repairs of buildings	89,768.01
Repairs of fences, road-crossings, and signs	22,012.21
Renewal of rails	121,705.59
[Number tons steel laid, 5,897.]	
Renewal of ties	98,058.36
[No. laid, 215,679.]	
Repairs of road-bed and track	475,748.26
Repairs of locomotives	254,604.37
Fuel for locomotives	513,716.82
[Tons of coal, 144,911; cords of wood, 661 $\frac{1}{4}$.]	
Water supply	20,537.94
Oil and waste	24,766.91
Locomotive service †	398,212.61
Repairs of passenger cars	123,810.58
Passenger-train service †	139,721.56
Passenger-train supplies	18,559.20
Mileage passenger cars ‡	22,111.18
Repairs of freight cars	228,528.25
Freight-train service †	318,732.95
Freight-train supplies	12,544.90

* Including freight to and from other roads starting from or stopping at stations on this road. † Salaries and wages. ‡ Debit balances.

Mileage freight cars *	\$79,528.48
Telegraph expenses	73,190.32
Loss and damage, freight and baggage	11,620.10
Loss and damage, property and cattle	3,217.68
Personal injuries	29,291.62
Agents' and station service †	514,880.86
Station supplies	43,657.39
Total operating expenses	\$4,011,539.65
Taxes, state {	185,065.34
" local {	
Total operating expenses and taxes	\$4,196,604.99

PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.

Grading and masonry	\$7,517.00
Superstructure, including rails	7,517.00
Passenger and freight stations, wood-sheds, and water-stations	44,589.55
Engine-houses, car-sheds, and turn-tables	204.96
Purchase of other roads:	13,639.59
Boston, H. Tunnel & Western R. R. . \$4,000.00	
Troy & Greenfield R. R. and H. Tunnel . 9,639.59	
Construction not apportioned:	769,444.09
Improvements on Worcester, Tunnel, and Western division . \$471,153.59	
New freight yards	125,103.25
Shops, machinery, and tools	40,018.50
Docks and elevators	133,168.75
Total for construction	\$842,912.19
Locomotives and air-brakes (10)	91,231.58
Passenger, mail, and baggage cars and steam heat (21)	107,092.77
Freight and other cars (742)	468,347.89
Total for equipment	666,672.24
Other expenditures charged to property accounts:	84,616.15
Real estate	\$84,616.15
Total charges to property accounts	\$1,594,200.58
Net additions to property accounts for the year	1,594,200.58

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road	\$32,422,597.46
Cost of equipment	3,523,080.75

* Debit balances. † Salaries and wages.

Lands in Boston, Worcester, and on line of road	\$603,592.40	
Total permanent investments		\$36,549,270.61
Cash	\$147,852.15	
Bills receivable	159,265.00	
Due from agents and companies	806,720.12	
Materials and supplies	836,109.35	
Debit balances	850,166.15	
Vermont & Massachusetts R. R. and improvements	1,465,211.88	
Total cash assets		4,265,324.65
Total assets (as per books of the company)		\$40,814,595.26

LIABILITIES.

Capital stock, viz.:		\$20,775,100.00
Common	\$7,000,000.00	
Preferred	13,525,100.00	
Liability under Troy & Boston consolidation	250,000.00	
Funded debt, viz.:		18,284,600.00
Bonds	\$17,534,600.00	
Liability under Troy & Boston consolidation	750,000.00	
Unfunded debt, viz.:		1,488,746.26
Interest unpaid	\$238,597.08	
Dividends unpaid	16,448.20	
Accrued taxes, not due	134,096.63	
Accrued rentals, not due	134,798.32	
Vouchers and accounts	964,806.03	
Profit and loss balance		266,149.00
Total liabilities (as per books of the company)		\$40,814,595.26

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage		1,937,513
Freight-train mileage		1,883,301
Total revenue train mileage		3,820,814
Switching-train mileage		1,061,285
Other train mileage		134,227
Total train mileage		5,016,326
Number of season-ticket passengers*	353,348	
Number of local passengers (including season)		5,196,701
Number of through passengers (to and from other roads going over and beyond this road)		395,172

* Reckoning twelve passengers per week for time of each season ticket.

Total number of passengers carried	5,591,873
Local passenger mileage (local passengers carried one mile)	64,295,881
Through passenger mileage (through passengers carried one mile)	21,033,726
Total passenger mileage	85,329,607
Number tons local freight	879,482
Number tons through freight (to and from other roads going over and beyond this road)	2,331,894
Total number tons freight carried	3,211,376
Local freight mileage (tons local freight carried one mile)	33,556,677
Through freight mileage (tons through freight carried one mile)*	269,401,938
Total freight mileage	302,958,615
Average number of persons employed	4,607
DESCRIPTION OF ROAD.	
Main line of road from Boston to Fitchburg	} 189.96 miles.
“ “ “ Greenfield to Troy and Rotterdam	
Main line of road in New York	
“ “ in Vermont	89.47 “
“ “ in Massachusetts	6.49 “
Double track on main line	94.00 “
Branches owned by the company, viz.:	100.56 “
Ice, Boston (double track) . . . . .	.68 “
Watertown (single track)	8.26 “
Marlborough (single track)	12.42 “
Peterborough & Shirley (single track)	23.62 “
Worcester (single track)	36.00 “
Ashburnham (single track)	2.59 “
Saratoga & Schuylerville (single track)	25.52 “
Total length of branches owned by company	109.09 “
Total length of branches owned by this company in New Hampshire	9.47 “
Total length of branches owned by this company in Massachusetts	74.10 “
Total length of branches owned by company in New York	25.52 “
Double track on branches . . . . .	.68 “
Total road belonging to this company	299.05 “
Sidings and other tracks not above enumerated	180.56 “
Total length of track, computed as single track	580.85 “
Total length of steel rails in tracks, not including steel-top rails	468.00 “
[Weight per yard, 60, 72, and 76 lbs.]	

* Carried to and from other roads.

*Roads and Branches belonging to other Companies,
operated by this Company under lease or contract.*

Vermont & Massachusetts R. R., length	56.00 miles.
Turner's Falls Branch, length	2.80 "
Bennington Branch	5.04 "
Southern Vermont Railroad	6.19 "
Total length of above roads	70.03 "
" " " in Massachusetts	58.80 "
" " " in New York	5.04 "
" " " in Vermont	6.19 "
Total miles of road operated by this company	369.08 "
Total miles of road operated by this company in New Hampshire	9.47 "
Number of stations in New Hampshire on all roads operated by this company	3
Number of telegraph offices in same	1
Number of stations on all roads owned by this company	124
Same in New Hampshire	3

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives.....	9	174	183
Number of passenger cars.....	14	172	186
Number of baggage, mail, and express cars..	3	43	46
Number of freight cars (basis of 8 wheels)....	205	5,176	5,381
Number of other cars.....		286	286
Number of snow-plows and scrapers.....		12	12

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....							3	4
Employés.....							24	78
Others.....							24	16

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	58 $\frac{3}{10}$ tons.
Average " " " "	39 "
Maximum weight of tenders full of fuel and water	35 "
Average " " " "	26 $\frac{1}{4}$ "
Maximum weight of passenger cars . . .	23 "
Average " " " "	20 "
" " of mail and baggage cars . . .	18 "
" " of 8-wheel box freight cars . . .	10 "
" " of 4-wheel " " . . .	4 $\frac{1}{2}$ "
" " of 8-wheel platform cars . . .	7 $\frac{1}{2}$ "
" " of 4-wheel " " . . .	3 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender . . .	46 ft. 9 in.
Total length of heaviest engine and tender over all	57 " 9 "
Number of locomotives equipped with train brake .	114
[Kind of brake, Westinghouse.]	
Number of cars equipped with train brake . . .	511
[Kind of brake, Westinghouse.]	
Number of passenger cars with Miller platform and buffer . . .	218
Number of miles of road operated by this company not furnished with telegraph facilities:	2.59 miles.
From Ashburnham Junction to Ashburnham 2.59	
BRIDGES.	
Number of spans of iron bridges of 25 feet and upwards* . . .	6
Aggregate length of same for single track 695 ft.	
Number of crossings of highways at grade* . . .	8
" " " under railroad . . .	2
RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company † . . .	2.01 cents.
Average rate of fare per mile received from passengers to and from other roads . . .	2.18 "
Average rate of fare per mile for season-ticket passengers ‡ . . .	.71 "
Average rate of fare per mile received from all passengers . . .	1.97 "
Average rate of local freight per ton per mile † . . .	2.97 "
Average rate of freight per ton per mile received from freight to and from other roads . . .	.86 "
Average rate of freight per ton per mile received from all freight . . .	1.09 "

* In New Hampshire, on miles of road owned. † Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

CAPITAL STOCK.

Capital stock authorized by charter:	
For double track, per mile	\$100,000
For single track, per mile	70,000
For terminal at Boston	3,000,000
Capital stock authorized by votes of company	20,775,100
Capital stock issued (number of shares, 205,251); amount paid in	\$20,525,100.00
Total amount paid in, as per books of the company	20,525,100.00
Total number of stockholders:	
Common	2
Preferred	3,917
	3,919
Number of stockholders in New Hampshire . .	266
Amount of stock held in New Hampshire	\$374,500

DEBT.

Funded debt, as follows:	
Plain bonds due April 1, 1894; rate of interest, 7 per cent	\$500,000.00
Interest paid on same during year	\$35,000.00
Plain bonds due October 1, 1897; rate of interest, 6 per cent	500,000.00
Interest paid on same during year	\$30,000.00
Plain bonds due October 1, 1899; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Plain bonds due October 1, 1900; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Plain bonds due October 1, 1901; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Plain bonds due April 1, 1902; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Plain bonds due April 1, 1903; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Plain bonds due March 1, 1904; rate of interest, 4 per cent	500,000.00
Interest paid on same during year	\$20,000.00
Plain bonds due June 1, 1905; rate of interest, 4 per cent	500,000.00
Interest paid on same during year	\$20,000.00

Plain bonds due February 1, 1937; rate of interest, 3 per cent	\$5,000,000.00
Interest paid on same during year	\$150,000.00
Plain bonds due April 1, 1907; rate of interest, 4 per cent	1,250,000.00
Interest paid on same during year	\$50,000.00
Plain bonds due September 1, 1897; rate of interest, 4½ per cent	2,250,000.00
Interest paid on same during year	\$88,282.55
Plain bonds due May 1, 1908; rate of interest, 5 per cent	2,000,000.00
Interest paid on same during year	\$41,462.39
Boston, Barre & Gardner R. R. 1st mortgage bonds, due April 1, 1893; rate of interest, 7 per cent	91,300.00
Interest paid on same during year	\$6,391.00
Boston, Barre & Gardner R. R. 1st mortgage bonds, due April 1, 1893; rate of interest, 5 per cent	299,700.00
Interest paid on same during year	\$14,985.00
Boston, Barre & Gardner R. R. 2d mortgage bonds, due July 1, 1895; rate of interest, 3 per cent	186,300.00
Interest paid on same during year	\$5,589.00
Boston, Barre & Gardner R. R. 3d mortgage bonds, due July 1, 1895; rate of interest, 6 per cent	57,300.00
Interest paid on same during year	\$3,438.00
Ashburnham R. R. 1st mortgage bonds, due June 1, 1888; rate of interest, 6 per cent. *	
Interest paid on same during year	\$240.00
Hoosac Tunnel Dock & Elevator Co.'s mortgage note, due April 5, 1892; rate of interest, 4 per cent	500,000.00
Interest paid on same during year	\$20,000.00
Boston, Hoosac Tunnel & Western R. R. debenture bonds, due September 1, 1903; rate of interest, 5 per cent	1,400,000.00
Interest paid on same during year	\$70,000.00
Total amount of funded debt	\$17,534,600.00

NAMES AND RESIDENCES OF OFFICERS.

E. B. Phillips, *President*, Boston, Mass.; George A. Torrey, *General Counsel*, Boston, Mass.; John Whitmore, *General Traffic Manager*, Boston, Mass.; C. S. Anthony, *Auditor*, Waltham, Mass.; John Adams, *Superintendent*, Boston, Mass.; C. L. Hartwell, *General Freight Agent*, Waltham, Mass.; J. R. Watson, *General Pas-*

* Matured and paid.

senger Agent, Boston, Mass.; Daniel A. Gleason, *Treasurer*, West Medford, Mass.; Thomas Whittemore, *Clerk of Corporation*, Cambridge, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

E. B. Phillips, Boston, Mass.; Robert Codman, Boston, Mass.; Rodney Wallace, Fitchburg, Mass.; Franklin N. Poor, Somerville, Mass.; Charles T. Crocker, Fitchburg, Mass.; John Quincy Adams, Quincy, Mass.; David P. Kimball, Boston, Mass.; James Renfrew, Jr., Adams, Mass.; Augustus Kountze, New York City; Daniel Robinson, Troy, N. Y.; Frederick L. Ames, Easton, Mass.; George Heywood, Concord, Mass.; W. S. Webb, New York City; Francis Smith, Rockland, Me.

PROPER ADDRESS OF THE COMPANY:

FITCHBURG RAILROAD COMPANY,
BOSTON, MASS.

E. B. PHILLIPS,
ROBERT CODMAN,
RODNEY WALLACE,
FRANKLIN N. POOR,
C. T. CROCKER,
J. Q. ADAMS,
DAVID P. KIMBALL,
JAMES RENFREW, JR.,
GEORGE HEYWOOD,

Directors.

DANIEL A. GLEASON,

Treasurer.

JOHN ADAMS,

Superintendent.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, November 20, 1888. Then personally appeared E. B. Phillips, Robert Codman, Rodney Wallace, Franklin N. Poor, C. T. Crocker, J. Q. Adams, David P. Kimball, James Renfrew, Jr., George Heywood, Daniel A. Gleason, and John Adams and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

THOMAS WHITTEMORE, *Justice of the Peace.*

REPORT

OF THE

MOUNT WASHINGTON RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$23,780.45
Total expense (including taxes)	16,616.26
Net income	7,164.19
Interest accrued during year:	600.00
On unfunded debt	\$600.00
Dividends declared (5 per cent)	6,475.00
Balance for the year (surplus)	89.19
Balance at commencement of year	\$16,970.38
Deduct ticket allowance to Concord road	6.00
Balance at commencement of year as so changed	16,964.38
Balance September 30, 1888 (surplus)	17,053.57
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$22,827.00
From through passengers (to and from other roads over and beyond this road)	
From mails	150.00
Total earnings from passenger department	22,977.00
Total transportation earnings	22,977.00
Income from all other sources, viz.:	803.45
Interest	\$701.43
Miscellaneous	102.02
Total income from all sources	\$23,780.45

*Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.		
Salaries of general officers and clerks . . .		\$1,125.00
Legal expenses		125.00
Insurance		255.50
Stationery and printing . . . }		
Outside agencies and advertising }		49.15
Contingencies and miscellaneous . . .		122.21
Repairs of bridges (including culverts and cattle-guards), buildings, fences, road-crossings, signs, and renewal of rails	\$921.01	
[No. tons steel laid, $21\frac{690}{240}$.]		
Repairs of road-bed and track . . .	3,643.99	
		4,565.00
Repairs of locomotives		985.47
Fuel for locomotives		2,142.54
[Cords of wood, $570\frac{1}{4}$.]		
Oil and waste		101.70
Locomotive service *		1,814.37
Repairs of passenger cars		492.73
Passenger-train service *		896.38
Freight on supplies and lumber		290.47
Telegraph expenses and clerk		158.12
Station supplies — provisions and board of men : .		1,554.62
Housekeeper and cook	\$286.75	
Provisions	1,267.87	
Total operating expenses		\$14,678.26
Taxes, state		1,938.00
Total operating expenses and taxes . . .		\$16,616.26
BALANCE-SHEET, SEPTEMBER 30, 1888.		
ASSETS.		
Cost of road and equipment . . .	\$139,500.00	
Total permanent investments . . .		\$139,500.00
Cash	\$14,924.39	
Due from agents and companies . . .	1,277.75	
Debit balances	851.43	
Total cash assets		17,053.57
Total assets (as per books of the company) .		\$156,553.57

* Salaries and wages.

LIABILITIES.	
Capital stock	\$129,500.00
Unfunded debt, viz. :	10,000.00
Notes payable \$10,000.00	
Profit and loss balance	17,053.57
Total liabilities (as per books of the company)	\$156,553.57
MILEAGE, TRAFFIC, ETC.	
Number of local passengers (including season and free)	7,291
Number of through passengers (to and from other roads going over and beyond this road)	7,291
Total number of passengers carried	42,986 $\frac{2}{3}$
Local passenger mileage (local passengers carried one mile, not including free)	42,986 $\frac{2}{3}$
Through passenger mileage (through passengers carried one mile, not including free)	25 to 30
Total passenger mileage	
Average number of persons employed	
DESCRIPTION OF ROAD.	
Main line of road from base of Mount Washington to summit	3.333 miles.
Total road belonging to this company	3.333 "
Total length of track, computed as single track	3.333 "
Same in New Hampshire	3.333 "
Total miles of road operated by this company	3.333 "
Total miles of road operated by this company in New Hampshire	3.333 "
Number of stations on all roads owned by this company	2
Same in New Hampshire	2

EQUIPMENT.

	Owued.	Total.
Number of locomotives.....	6	6
Number of passenger cars.....	7	7
Number of baggage, mail, and express cars.....	1	1
Number of freight cars (basis of 8 wheels).....	2	2

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	12 tons.
Average " " " "	12 "
Maximum weight of tenders full of fuel and water, included in weight of locomotive.	
Maximum weight of passenger cars . . .	3 "
Average " " " "	2 $\frac{3}{4}$ "
" " of mail and baggage cars . . .	4 "
" " of 4-wheel box freight cars . . .	1 $\frac{1}{2}$ "
" " of 4-wheel platform cars . . .	1 $\frac{1}{2}$ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender . . .	15 feet.
Total length of heaviest engine and tender over all	18 "
Number of locomotives equipped with train brake .	All.
[Kind of brake, Westinghouse.]	
Number of cars equipped with train brake . . .	All.
[Kind of brake, Westinghouse.]	
CAPITAL STOCK.	
Capital stock authorized by votes of company . . . \$129,500	
Capital stock issued (number of shares, 1,295); amount paid in . . .	\$129,500.00
Total amount paid in (as per books of the company)	129,500.00
Total number of stockholders . . . 29	
Number of stockholders in New Hampshire . . . 20	
Amount of stock held in New Hampshire \$79,800	

NAMES AND RESIDENCES OF OFFICERS.

Walter Aiken, *President* and *General Manager*, Franklin Falls, N. H.; Edward D. Harlow, *Treasurer*, Boston, Mass.; F. E. Brown, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Walter Aiken, Franklin Falls, N. H.; Nathaniel White, Jr., John M. Mitchell, Concord, N. H.; James T. Furber, Boston, Mass.; Frederick Smyth, Manchester, N. H.; Charles E. A. Bartlett, Boston, Mass.; John P. George, Concord, N. H.

PROPER ADDRESS OF THE COMPANY:

MOUNT WASHINGTON RAILROAD.

President's Office, FRANKLIN FALLS, N. H.

Treasurer's and Transfer Office, BOSTON, MASS.

EDWARD D. HARLOW,

Treasurer.

WALTER AIKEN,

General Manager.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. December 19, 1888. Then personally appeared Edward D. Harlow and Walter Aiken, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

ELLIOTT J. HYDE, *Justice of the Peace.*

REPORT

OF THE

NORTHERN RAILROAD COMPANY *

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$344,627.01
Total expense (including taxes)	178,209.06
Net income	166,417.95
Dividends declared (6 per cent)	179,838.00
Balance for the year (deficit)	13,420.05
Balance at commencement of year	191,477.01
Balance September 30, 1888 (surplus)	178,056.96

ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)†	\$27,025.06
From through passengers (to and from other roads over and beyond this road)	15,201.59
From express and extra baggage	2,750.01
From mails	3,600.00
From other sources, passenger department	99.99
Total earnings from passenger department	48,676.65
From local freight (all freight starting from or stopping at any station on this road) †	38,519.16
From through freight (to and from other roads over and beyond this road)	85,736.20
Total earnings from freight department	124,255.36
Total transportation earnings	172,932.01
Rents for use of road	118,815.00

* Operating expenses from October 1 to December 31, 1887, only, included, as subsequent to that time they are included in Boston & Maine Railroad report.

† Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz.:	\$52,880.00
Rents	\$685.51
Balance of interest	50,809.42
Miscellaneous	1,385.07
Total income from all sources	\$344,627.01
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$12,822.80
Legal expenses	1,632.87
Insurance	1,440.52
Stationery and printing	2,040.76
Outside agencies and advertising	888.96
Contingencies and miscellaneous	6,156.07
Repairs of bridges (including culverts and cattle- guards)	8,290.54
Repairs of buildings	4,102.00
Repairs of fences, road-crossings, and signs	643.94
Renewal of rails	2,420.44
[No. tons steel laid, 23.]	
[No. tons iron laid, 56.]	
Renewal of ties	2,888.91
[No. laid, cross, 7,285; switch, 17,799 feet.]	
Repairs of road-bed and track	17,841.72
Repairs of locomotives	10,021.07
Fuel for locomotives	33,230.78
[Tons of coal, 4,942; cords of wood, 1,114.]	
Water supply	748.85
Oil and waste	1,843.30
Locomotive service*	10,902.62
Repairs of passenger cars	2,863.14
Passenger-train service*	2,907.82
Passenger-train supplies	2,050.69
Mileage passenger cars†	1,000.00
New snow-plows and snow expense	1,850.84
Repairs of freight cars	9,457.07
Freight-train service*	6,039.45
Freight-train supplies	558.88
Mileage freight cars†	18,306.96
Telegraph expenses	863.64
Loss and damage, freight and baggage	38.50
Personal injuries	78.50
Agents' and station service*	7,844.62
Station supplies	532.74
Total operating expenses	\$172,309.00
Taxes, state	5,827.05
" local	73.01
Total operating expenses and taxes	\$178,209.06

* Salaries and wages.

† Debit balances.

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment	\$3,068,400.00	
Total permanent investments		\$3,068,400.00
Cash	\$45,360.92	
Bills receivable	890,044.77	
Superintendent's department	11,290.43	
In trust, Concord & Claremont R.R.	254,245.72	
Stock of Northern R. R.	37,708.34	
Total cash assets		1,238,650.18
Total assets (as per books of the company)		\$4,307,050.18

LIABILITIES.

Capital stock		\$3,068,400.00
Unfunded debt, viz.:		102,375.26
Interest unpaid	\$33.00	
Dividends unpaid, including \$89,919, due November 1, 1888	102,342.26	
Contingent fund		958,217.96
Profit and loss balance		178,056.96
Total liabilities (as per books of the company)		\$4,307,050.18

Present or Contingent Liabilities not included in the Balance-sheet.

Bonds guaranteed by this company, or a lien on its road, viz.:		500,000.00
Concord & Claremont (N. H.) road	\$500,000	
Total (not included in balance-sheet)		500,000.00

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	48,718
Freight-train mileage	124,144
Total revenue train mileage	172,862
Switching-train mileage	11,455
Other train mileage	343
Total train mileage	184,660
Number of local passengers (including season)	98,054
Number of through passengers (to and from other roads going over and beyond this road)	18,678
Total number of passengers carried	116,732

Local passenger mileage (local passengers carried one mile)	726,298
Through passenger mileage (through passengers carried one mile)	962,768
Total passenger mileage	1,689,066
Number tons local freight	53,172
Number tons through freight (to and from other roads going over and beyond this road)	226,682
Total number tons freight carried	279,854
Local freight mileage (tons local freight carried one mile)	1,511,214
Through freight mileage (tons through freight carried one mile)*	15,280,051
Total freight mileage	16,791,265
Average number of persons employed	675
DESCRIPTION OF ROAD.	
Main line of road from Concord to White River Junction	69.50 miles.
Main line of road in New Hampshire	69.50 "
" " Vermont	A few rods.
Branches owned by this company, viz.: Franklin to Bristol (single track)	13.41 miles.
Total length of branches owned by company in New Hampshire	13.41 "
Total road belonging to this company	82.91 "
Sidings and other tracks not above enumerated	16.54 "
Same in New Hampshire	16.54 "
Total length of track, computed as single track	99.45 "
Same in New Hampshire	99.45 "
Total length of steel rails in tracks, not including steel-top rails	69.50 "
[Weight per yard, 56 to 72 lbs.]	
Total miles of road operated by this company	82.91 "
Total miles of road operated by this company in New Hampshire	82.91 "
Number of stations in New Hampshire on all roads operated by this company	21
Number of telegraph offices in same	19
Number of stations on all roads owned by this company	22
Same in New Hampshire	21
EQUIPMENT.	
Number of locomotives	25
Number of passenger cars	15

* Carried to and from other roads.

Number of baggage, mail, and express cars . . .	8
Number of freight cars (basis of 8 wheels) . . .	464 $\frac{3}{4}$
Number of other cars	40
Snow-plows on wheels	2

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers								
Employés			1	2	1	2	1	2
Others.....								

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

November 1, 1887.—At Concord, N. H., Andrew Keniston, yard brakeman, while riding on end of moving car while shifting in the yard at Concord, had his foot caught between the drawheads of that and another car, and so badly injured that it was necessary to amputate the foot.

November 24.—At West Lebanon, N. H., F. O. Brown, freight conductor, two fingers badly jammed while coupling cars.

December 17.—Near West Lebanon, N. H., Henry F. Bailey, freight brakeman, supposed to have fallen between box and flat cars, and was run over and killed.

Subsequent to January 1, 1888, included in Boston & Maine Railroad report.

GENERAL INFORMATION.

Maximum weight of locomotives in working order.	77,100 lbs.
Average " " " "	60,238 "
Maximum weight of tenders full of fuel and water	45,800 "
Average " " " "	42,650 "
Maximum weight of passenger cars	41,200 "
Average " " " "	36,615 "

Average weight of mail and baggage cars . .	31,500 lbs.
“ “ of 8-wheel box freight cars . .	14,700 “
“ “ of 4-wheel “ “ . .	8,000 “
“ “ of 8-wheel platform cars . .	13,300 “
“ “ of 4-wheel “ “ . .	6,500 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	41 ft. 8 in.
Total length of heaviest engine and tender over all	51 “ 3 “
Number of locomotives equipped with train brake .	15
[Kind of brake, Westinghouse automatic.]	
Number of cars equipped with train brake . .	21
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer	23
Charges for the transportation of company's supplies included in the earnings as reported for this road :	
Rate, $1\frac{2}{10}$ cents per ton per mile ; number tons carried, 1,123 ; amount credited to earnings, \$617.55	
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards *	2
Aggregate length of same for single track 312 ft.	
Number of spans of timber bridges of 25 feet and upwards *	42
Aggregate length of same for single track, 4,142½ ft.	
Number of crossings of highways at grade * . .	48
“ “ “ over railroad . .	13
“ “ “ under “ . .	13
Number of highway bridges 18 feet above track . .	1
Number of highway bridges less than 18 feet above track	12
Number of crossings at which gates or flagmen are maintained	2
Number of crossings at which there are neither signals nor flagmen *	46
RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3.72 cents.
Average rate of fare per mile received from passengers to and from other roads	1.58 “

* In New Hampshire on miles of road owned.

† Rates as per tariff.

Average rate of fare per mile received from all passengers	2.50 cents.
Average rate of local freight per ton per mile *	2.55 "
Average rate of freight per ton per mile received from freight to and from other roads	.56 "
Average rate of freight per ton per mile received from all freight	.74 "
CAPITAL STOCK.	
Capital stock authorized by charter	\$3,068,400
Capital stock authorized by votes of company	3,068,400
Capital stock issued (number of shares, 30,684); amount paid in	\$3,068,400.00
Total number of stockholders	2,055
Number of stockholders in New Hampshire	819
Amount of stock held in New Hampshire	\$822,100

NAMES AND RESIDENCES OF OFFICERS.

Alvah W. Sulloway, *President*, Franklin, N. H.; James W. Flavin, *Auditor*, Concord, N. H.; George E. Todd, *Superintendent*, Concord, N. H.; D. C. Prescott, *General Freight Agent*, Boston, Mass.; G. W. Storer, *General Passenger Agent*, Boston, Mass.; George A. Kettell, *Treasurer*, Boston, Mass.; W. L. Foster, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

A. W. Sulloway, George W. Nesmith, Franklin, N. H.; George E. Todd, Concord, N. H.; J. H. Benton, Jr., Benjamin P. Cheney, Silas Pierce, Uriel H. Crocker, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

NORTHERN RAILROAD,

CONCORD, N. H.

Treasurer's Office, 28 STATE STREET, BOSTON, MASS.

* Rates as per tariff.

A. W. SULLOWAY,
GEORGE E. TODD,
Directors.

GEORGE A. KETTELL,
Treasurer.

GEORGE E. TODD,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. May 22, 1889. Then personally appeared A. W. Sulloway and George E. Todd, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. W. FLAVIN, *Justice of the Peace.*

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. May 24, 1889. Then personally appeared George A. Kettell, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

W. H. H. ANDREWS, *Notary Public.* 

REPORT

OF THE

CONCORD & CLAREMONT (N. H.) RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$74,695.88
Total expense (including taxes)	48,468.76
Net income	26,227.12
Interest accrued during year:	35,000.00
On funded debt	\$35,000.00
Balance for the year (deficit)	8,772.88
Balance at commencement of year	\$28,785.68
Deduct:	
Interest of former years accrued	8,750.00
Rental of P. & H. R. R. accrued	3,250.00
Balance at commencement of year as so changed	16,785.68
Balance September 30, 1888 (surplus)	8,012.80
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$18,744.24
From through passengers (to and from other roads over and beyond this road)	117.46
From express and extra baggage	999.99
From mails	1,200.00
From other sources, passenger department	1,564.56
Total earnings from passenger department	22,626.25
From local freight (all freight starting from or stopping at any station on this road)*	24,959.88
From through freight (to and from other roads over and beyond this road)	771.93

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Total earnings from freight department . . .	\$25,731.81
Total transportation earnings	48,358.06
Rents for use of road	26,250.00
Income from all other sources, viz.:	87.82
Rents	\$87.82
Total income from all sources	\$74,695.88
ANALYSIS OF EXPENSES.*	
Salaries of general officers and clerks	\$1,225.86
Insurance	446.94
Stationery and printing	888.53
Outside agencies and advertising	1,129.61
Contingencies and miscellaneous	234.66
Repairs of bridges (including culverts and cattle-guards)	6,372.92
Repairs of buildings	1,456.18
Repairs of fences, road-crossings, and signs	801.22
Renewal of rails	691.62
[No. tons iron laid, 25.]	
Renewal of ties	3,819.63
[No. laid, cross, 14,081; switch, 13,549 feet.]	
Repairs of road-bed and track	9,964.93
Repairs of locomotives	2,166.63
Fuel for locomotives	6,279.99
[Tons of coal, 796; cords of wood, 482.]	
Water supply	85.05
Oil and waste	417.67
Locomotive service †	2,282.73
Repairs of passenger cars	1,330.72
Passenger-train service †	1,971.15
Passenger-train supplies	165.03
Mileage passenger cars ‡	184.36
Repairs of freight cars	66.56
Freight-train service †	948.85
Freight-train supplies	75.01
Telegraph expenses	18.00
Loss and damage, freight and baggage	35.77
Personal injuries	445.29
Agents' and station service †	3,068.53
Station supplies	149.95
Total operating expenses	\$46,723.39
Taxes, state	1,745.37
Total operating expenses and taxes	\$48,468.76

* Operating expenses from October 1 to December 31, 1887, only included, as subsequent to that time they are included in Boston & Maine R. R. report.

† Salaries and wages. ‡ Debit balances.

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment	\$1,131,206.38
Cash	53,083.90
Total assets (as per books of the company) .	\$1,184,290.28

LIABILITIES.

Capital stock	\$412,400.00
Funded debt	500,000.00
Unfunded debt, viz.:	263,877.48
Interest due, unpaid, and accrued: . \$9,187.50	
Due \$437.50	
Accrued 8,750.00	
Superintendent's department 444.26	
Vouchers and accounts Northern R. R. 254,245.72	
Profit and loss balance	8,012.80
Total liabilities (as per books of the company)	\$1,184,290.28

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	28,667
Freight-train mileage	19,993
Total revenue train mileage	48,660
Switching-train mileage	304
Other train mileage	1,352
Total train mileage	50,316
Number of season-ticket passengers* . . . 824	
Number of local passengers (including season) .	52,617
Number of through passengers (to and from other roads going over and beyond this road) . .	110
Total number of passengers carried . . .	52,727
Local passenger mileage (local passengers carried one mile)	602,260
Through passenger mileage (through passengers carried one mile	6,182
Total passenger mileage	608,442
Number tons local freight	32,994
Number tons through freight (to and from other roads going over and beyond this road) . .	4,499
Total number tons freight carried	37,493

* Reckoning twelve passengers per week for time of each season ticket.

Local freight mileage (tons local freight carried one mile)	796,230
Through freight mileage (tons through freight carried one mile)	174,782
Total freight mileage	971,012
Average number of persons employed	245

DESCRIPTION OF ROAD.

Main line of road from Concord to Claremont Junction	56.00 miles.
Main line of road in New Hampshire	56.00 "
Branches owned by the company, viz.:	
Contoocook to Hillsborough (single track)	14.90 "
Total length of branches owned by company in New Hampshire	14.90 "
Total road belonging to this company	70.90 "
Sidings and other tracks not above enumerated	7.87 "
Same in New Hampshire	7.87 "
Total length of track, computed as single track	78.77 "
Same in New Hampshire	78.77 "
Total length of steel rails in tracks, not including steel-top rails	23.28 "
[Weight per yard, 56 to 72 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Peterborough & Hillsborough R. R., length	18.51 "
Total length of above road	18.51 "
" " " in New Hampshire	18.51 "
Total miles of road operated by this company	89.41 "
Total miles of road operated by this company in New Hampshire	89.41 "
Number of stations in New Hampshire on all roads operated by this company	27
Number of telegraph offices in same	13
Number of stations on all roads owned by this company	22
Same in New Hampshire	22

EQUIPMENT.

Number of locomotives	1
Number of passenger cars	6
Number of freight cars (basis of 8 wheels)	9½

STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.

Subsequent to January 1, 1888, included in Boston & Maine R. R. report.

GENERAL INFORMATION.	
Maximum weight of locomotives in working order	60,250 lbs.
Average " " " "	60,250 "
Maximum weight of tenders full of fuel and water	44,500 "
Average " " " "	44,500 "
Maximum weight of passenger cars . . .	41,000 "
Average " " " "	34,000 "
" " of 8-wheel box freight cars . . .	14,700 "
" " of 4-wheel " " " " . . .	8,000 "
" " of 8-wheel platform cars . . .	13,300 "
" " of 4-wheel " " " " . . .	6,500 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender . . .	39 ft.
Total length of heaviest engine and tender over all	48 ft. 6 in.
Number of cars equipped with train brake . . .	5
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer . . .	5
Charges for the transportation of company's supplies included in the earnings as reported for this road :	
Rate, $1\frac{2}{10}$ cents per ton per mile ; number tons carried, 2,784 ; amount credited to earnings, \$1,816.60.	
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards* . . .	2
Aggregate length of same for single track 434 ft.	
Number of spans of timber bridges of 25 feet and upwards* . . .	32
Aggregate length of same for single track, 3,129½ ft.	
Number of crossings of highways at grade* . . .	90
" " " " over railroad . . .	2
" " " " under " . . .	1
Number of highway bridges 18 feet above track . . .	2
Number of crossings at which gates or flagmen are maintained . . .	2
Number of crossings at which there are neither signals nor flagmen* . . .	88
RATE OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company † . . .	3.08 cents.

* In New Hampshire on miles of road owned.

† Rates as per tariff.

Average rate of fare per mile received from passengers to and from other roads	1.90 cents.
Average rate of fare per mile for season-ticket passengers *	.97 "
Average rate of fare per mile received from all passengers	3.10 "
Average rate of local freight per ton per mile †	3.10 "
Average rate of freight per ton per mile received from freight to and from other roads . . . . .	.44 "
Average rate of freight per ton per mile received from all freight	2.65 "
CAPITAL STOCK.	
Capital stock authorized by votes of company \$412,400	
Capital stock issued (number of shares, 4,124); amount paid in	\$412,400.00
Total number of stockholders	11
Number of stockholders in New Hampshire	11
Amount of stock held in New Hampshire	\$412,400
DEBT.	
Funded debt as follows:	
Bonds due January 1, 1894; rate of interest, 7 per cent	\$500,000.00
Interest paid on same during year \$35,000.00	
Total amount of funded debt	500,000.00

NAMES AND RESIDENCES OF OFFICERS.

Dexter Richards, *President*, Newport, N. H.; James W. Flavin, *Auditor*, Concord, N. H.; George E. Todd, *Superintendent*, Concord, N. H.; D. C. Prescott, *General Freight Agent*, Boston, Mass.; George W. Storer, *General Passenger Agent*, Boston, Mass.; George A. Kettell, *Treasurer*, Boston, Mass.; Charles P. Sanborn, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Dexter Richards, Newport, N. H.; Augustus E. Scott, Lexington, Mass.; A. W. Sulloway, Franklin, N. H.; D. W. Johnson, Claremont, N. H.; George E. Todd, Concord, N. H.; J. H. Benton, Jr., Boston, Mass.; Charles O. Stearns, Boston, Mass.

* Reckoning twelve passengers per week for time of each season ticket.

† Rates as per tariff.

PROPER ADDRESS OF THE COMPANY:

CONCORD & CLAREMONT (N. H.) RAILROAD,

CONCORD, N. H.

Treasurer's Office, 28 STATE STREET, BOSTON, MASS.

A. W. SULLOWAY,
GEORGE E. TODD,

Directors.

GEORGE A. KETTELL,

Treasurer.

GEORGE E. TODD,

Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. May 22, 1889. Then personally appeared A. W. Sulloway and George E. Todd, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. W. FLAVIN, *Justice of the Peace.*

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. May 24, 1889. Then personally appeared George A. Kettell, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

WILLIAM H. H. ANDREWS, *Notary Public.*

REPORT

OF THE

PORTLAND & ROCHESTER RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$204,939.43
Total expense (including taxes)	163,572.87
Net income	41,366.56
Dividends declared (6 per cent)	35,517.83
Balance for the year	5,848.73
Balance at commencement of year	\$76,993.65
Deduct	76.12
Balance at commencement of year as so changed	76,917.53
Balance September 30, 1888 (surplus)	82,766.26

ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$81,323.35
From through passengers (to and from other roads over and beyond this road)	
From express	3,193.61
From mails	6,909.96
Total earnings from passenger department	91,926.92
From local freight (all freight starting from or stopping at any station on this road)*	111,363.99
From through freight (to and from other roads over and beyond this road)	
From other sources, freight department	757.14
Total earnings from freight department	112,121.13
Total transportation earnings	204,048.05
Income from all other sources	891.38
Total income from all sources	\$204,939.43

* Including passengers and freight to and from other roads, starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks . . .	\$6,800.00
Legal expenses	85.55
Insurance	841.55
Stationery and printing	2,558.08
Contingencies and miscellaneous	7,850.30
Repairs of bridges (including culverts and cattle-guards)	5,950.09
Repairs of buildings	9,135.36
Repairs of fences, road-crossings, and signs . . .	1,550.17
Renewal of ties	6,678.99
[No. laid, 21,957.]	
Repairs of road-bed and track	26,375.90
Repairs of locomotives	10,788.30
Fuel for locomotives	18,237.16
Water supply	691.32
Locomotive service*	9,745.12
Repairs of passenger cars	5,830.79
Passenger-train service*	4,338.51
Passenger-train supplies	407.58
Repairs of freight cars	9,391.75
New freight cars	5,894.35
Freight-train service*	8,547.19
Freight-train supplies	89.92
Telegraph expenses	894.95
Loss and damage, freight and baggage	99.28
Loss and damage, property and cattle	302.96
Personal injuries	56.50
Agents' and station service*	8,197.78
Station supplies	946.32
Switchmen, watchmen, and flagmen*	6,934.16
Total operating expenses	\$161,111.96
Taxes, state	1,762.22
“ local	698.69
Total operating expenses and taxes	\$163,572.87

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment	\$591,970.45
Lands in Portland	45,601.44
Lands in Gorham	2,286.00
Lands in Alfred	800.00
Lands in Wentworth	2,450.00
Total permanent investments	\$643,107.89

*Salaries and wages.

Cash	\$6,697.83	
Bills receivable	285.96	
Due from agents and companies	797.39	
Materials and supplies	19,347.64	
Total cash assets		\$27,128.82
Improvement account		4,500.00
Total assets (as per books of the company)		\$674,736.71
LIABILITIES.		
Capital stock issued		\$591,970.45
Profit and loss balance		82,766.26
Total liabilities (as per books of the company)		\$674,736.71
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		84,927
Freight-train mileage		67,499
Total revenue train mileage		152,426
Switching-train mileage		28,982
Other train mileage		14,583
Total train mileage		195,991
Number of local passengers (including season)		230,211
Number of through passengers (to and from other roads going over and beyond this road)		22,243
Total number of passengers carried		252,454
Number tons local freight		64,622
Number tons through freight (to and from other roads going over and beyond this road)		56,498
Total number tons freight carried		121,120
Local freight mileage (tons local freight carried one mile)		1,143,462
Through freight mileage (tons through freight carried one mile) *		2,399,534
Average number of persons employed		130
DESCRIPTION OF ROAD.		
Main line of road from Portland, Me., to Rochester, N. H.		52.50 miles.
Main line of road in New Hampshire		3.50 "
" " Maine		49.00 "
Sidings and other tracks not above enumerated		13.06 "
Same in New Hampshire		1.50 "
Total length of track, computed as single track		65.56 "
Same in New Hampshire		5.00 "

* Carried to and from other roads.

Total length of steel rails in tracks, not including steel-top rails	52.50 miles.
[Weight per yard, 56 lbs.]	
Total miles of road operated by this company	52.50 "
Total miles of road operated by this company in New Hampshire	3.50 "
Number of stations in New Hampshire on all roads operated by this company	2
Number of telegraph offices in same	2
Number of stations on all roads owned by this company	17
Same in New Hampshire	1
EQUIPMENT.	
Number of locomotives	8
Number of passenger cars	10
Number of baggage, mail, and express cars	6
Number of freight cars (basis of 8 wheels)	237
Number of other cars	24
GENERAL INFORMATION.	
Maximum weight of locomotives in working order	40 tons.
Average " " " "	33 "
Maximum weight of tenders full of fuel and water	18 "
Average " " " "	14 "
Maximum weight of passenger cars	19 "
Average " " " "	16 "
" " of mail and baggage cars	13 "
" " of 8-wheel box freight cars	9 "
" " of 8-wheel platform cars	7½ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	42½ ft.
Total length of heaviest engine and tender over all	50½ ft.
Number of locomotives equipped with train brake	5
[Kind of brake, Westinghouse.]	
Number of cars equipped with train brake	10
[Kind of brake, Westinghouse.]	
Number of passenger cars with Miller platform and buffer	11
BRIDGES.	
Number of crossings at which gates or flagmen are maintained	1

RATES OF FARE, ETC.	
Average rate of fare per mile received from passengers to and from other roads	3½ cents.
Average rate of fare per mile for season-ticket passengers*	1 “
Average rate of fare per mile received from all passengers	2½ “
CAPITAL STOCK.	
Capital stock authorized by charter . . . \$600,000	
Capital stock issued, amount paid in	\$591,970.45
Total number of stockholders 95	
Number of stockholders in New Hampshire . . . 3	
Amount of stock held in New Hampshire \$1,100	

NAMES AND RESIDENCES OF OFFICERS.

George P. Wescott, *President*, Portland, Me.; I. W. Peters, *Superintendent*, *General Freight Agent*, and *General Passenger Agent*, Portland, Me.; William H. Conant, *Treasurer* and *Clerk of Corporation*, Portland, Me.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George P. Wescott, Nathan Webb, W. L. Putnam, C. McCarthy, Jr., James P. Baxter, Portland, Me.; I. S. Ricker, Deering, N. H.; George C. Lord, Newton, Mass.; Arthur Sewall, Bath, Me.; Stephen J. Young, Brunswick, Me.

PROPER ADDRESS OF THE COMPANY:

PORTLAND & ROCHESTER RAILROAD,

PORTLAND, ME.

WILLIAM H. CONANT,
Treasurer.

I. W. PETERS,
Superintendent.

* Reckoning twelve passengers per week for time of each season ticket.

STATE OF MAINE.

CUMBERLAND, SS. February 9, 1889. Then personally appeared William H. Conant and I. W. Peters, and severally made oath to the truth of the foregoing statement by them subscribed; according to their best knowledge and belief.

JOHN B. DONOVAN, *Justice of the Peace.*

REPORT

OF THE

RECEIVER OF THE PORTLAND & OGDENSBURG RAILROAD COMPANY

FOR THE ELEVEN MONTHS ENDING AUGUST 31, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$332,741.79
Total expense (including taxes)	256,864.63
Net income	75,877.16
Interest accrued during year:	12,611.08
On receiver's certificates	\$12,500.00
On unfunded debt	111.08
Balance for the year (surplus)	63,266.08
Balance at commencement of year	\$78,812.10
Add sundry accounts	1,549.11
	\$80,361.21
Deduct sundry accounts	40.55
Balance at commencement of year as so changed	80,320.66
Balance September 30, 1888 (surplus)	143,586.74

ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$62,131.14
From through passengers (to and from other roads over and beyond this road)	59,560.21
From express and extra baggage	5,080.27
From mails	7,679.29
From other sources, passenger department	1,004.50
Total earnings from passenger department	135,455.41
From local freight (all freight starting from or stopping at any station on this road) *	96,227.17
From through freight (to and from other roads over and beyond this road)	100,866.56

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Total earnings from freight department . . .	\$197,093.73
Income from all other sources, viz.: . . .	192.65
Wharfage \$177.65	
Rent of land 15.00	
Total income from all sources	\$332,741.79

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks }	\$13,223.86
Legal expenses and miscellaneous . }	
Insurance	1,458.34
Repairs of bridges (including culverts and cattle-guards)	4,754.73
Repairs of buildings	4,734.93
Engine-house at Bartlett	2,654.54
Repairs of fences, road-crossings, and signs . . .	1,075.17
Repairs of machine-shops and machinery, and shop expense	2,638.96
Renewal of rails	3,831.80
Removing ice and snow	7,087.67
Renewal of ties	7,107.31
Repairs of road-bed and track	37,602.05
Repairs of snow-plows	1,795.34
Repairs of locomotives	12,235.33
Fuel for locomotives	29,980.22
Fuel for stations and shops	1,955.16
Water supply	1,228.87
Oil and waste	2,585.07
Switchmen, watchmen, flagmen, and signalmen * .	5,822.74
Repairs of passenger cars	9,490.23
Passenger-train service * }	
Passenger-train supplies }	13,738.16
Mileage passenger cars †	1,219.63
Repairs of freight cars	18,542.57
New freight cars	8,750.00
Freight-train service * }	
Freight-train supplies }	19,666.22
Mileage freight cars †	5,632.78
Telegraph expenses	1,091.41
Loss and damage, freight and baggage	137.26
Agents' and station service * }	
Station supplies }	33,026.33
Taxes, state }	
“ local }	3,797.65
Total operating expenses and taxes	\$256,864.63

* Salaries and wages. † Debit balances.

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Accounts and coupons of P. & O. R. R. Co., paid .	\$320,479.36
Cash	\$18,468.75
Bills receivable	10,621.73
Due from agents and companies	37,174.92
Materials and supplies	26,429.15
Debit balances	26,935.67
Total cash assets	119,630.22
Total assets (as per books of the company) .	\$440,109.58

LIABILITIES.

Funded debt, receiver's loan certificates	\$250,000.00
Vouchers and accounts	46,522.84
Profit and loss balance	143,586.74
Total liabilities (as per books of the company)	\$440,109.58

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	127,021
Freight-train mileage	112,942
Total revenue train mileage	239,963
Switching-train mileage	55,752
Other train mileage	11,907
Total train mileage	307,622
Number of local passengers (including season) . .	89,791
Number of through passengers (to and from other roads going over and beyond this road) . .	44,798
Total number of passengers carried	134,589
Local passenger mileage (local passengers carried one mile)	1,813,520
Through passenger mileage (through passengers carried one mile)	1,920,585
Total passenger mileage	3,734,105
Number tons local freight	105,056
Number tons through freight (to and from other roads going over and beyond this road) . .	135,399
Total number tons freight carried	240,455
Local freight mileage (tons local freight carried one mile)	2,144,649

Through freight mileage (tons through freight carried one mile) *	10,121,069
Total freight mileage	12,265,718
Average number of persons employed	309
DESCRIPTION OF ROAD.	
Main line of road from Portland to Fabyan's	89.034 miles.
“ “ from Scott's to Lunenburg	2.320 “
“ “ in New Hampshire	40.544 “
“ “ in Maine	50.810 “
Total road belonging to this company	91.354 “
Total miles of road operated by this company	91.354 “
Total miles of roads operated by this company in New Hampshire	40.544 “
Number of stations in New Hampshire on all roads operated by this company	9
Number of telegraph offices in same	4
Number of stations on all roads owned by this company	22
Same in New Hampshire	9
EQUIPMENT.	
Number of locomotives	15
“ passenger cars	20
“ baggage, mail, and express cars	6
“ freight cars (basis of 8 wheels)	313
“ other cars	33
GENERAL INFORMATION.	
Maximum weight of locomotives in working order	90,000 lbs.
Average “ “ “ “	72,000 “
Maximum weight of tenders full of fuel and water	60,000 “
Average “ “ “ “	50,000 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	43 feet.
Total length of heaviest engine and tender over all	51 “
Number of locomotives equipped with train brake	11
[Kind of brake, Eames.]	
Number of cars equipped with train brake	21
[Kind of brake, Eames.]	
Number of passenger cars with Miller platform and buffer	21

* Carried to and from other roads.

BRIDGES.		
Number of iron bridges of 25 feet and upwards *	3,172 ft.	16
Number of timber bridges of 25 feet and upwards *	1,069 ft.	17
Number of crossings of highways at grade*		59
“ “ “ over railroad		3
“ “ “ under “		2
Number of highway bridges less than 18 feet above track		3
Number of crossings at which gates or flagmen are maintained		1
Number of railroad crossings at grade: *		1
Boston, Concord, & Montreal R. R., at Fabyan's, N. H.		

NAMES AND RESIDENCES OF OFFICERS.

Samuel J. Anderson, *President*, Portland, Me.; John W. Dana, *Treasurer*, Portland, Me.; Charles H. Foye, *Clerk of Corporation*, Portland, Me.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel J. Anderson, Stephen R. Small, H. N. Jose, Fred N. Dow, W. F. Milliken, Thomas P. Shaw, Francis Fessenden, Charles J. Chapman, Portland, Me.; Arthur Sewall, Bath, Me.; Frank Jones, Portsmouth, N. H.

PROPER ADDRESS OF THE COMPANY:

PORTLAND & OGDENSBURG RAILWAY,

PORTLAND, ME.

SAMUEL J. ANDERSON,

Receiver P. & O. R. R. Co.

STATE OF MAINE.

CUMBERLAND, ss. February 12, 1889. Then personally appeared Samuel J. Anderson, receiver of the Portland & Ogdensburg Railroad Company, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOHN W. DANA, *Justice of the Peace.*

* In Maine, New Hampshire, and Vermont, the whole line.

REPORT

OF THE

PROFILE & FRANCONIA NOTCH RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$17,117.05
Total expense (including taxes)	11,753.87
Net income	5,363.18
Dividends declared (4 per cent)	8,000.00
Balance for the year	1,670.88
Balance at commencement of year	4,307.70
Balance September 30, 1888	1,670.88
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) * .	\$16,362.38
From express and extra baggage	305.80
From mails	222.23
Total earnings from passenger department	16,890.41
From other sources, freight department	200.00
Total transportation earnings	17,090.41
Income from all other sources	26.64
Total income from all sources	\$17,117.05
BALANCE-SHEET, SEPTEMBER 30, 1888.	
ASSETS.	
Cost of road	\$191,071.99
Cost of equipment	24,945.03
Total permanent investments	\$216,017.02

* Including passengers and freight to and from other roads, starting from or stopping at stations on this road.

Cash	\$1,670.88	
Total cash assets		\$1,670.88
Total assets (as per books of the company)		\$217,687.90
LIABILITIES.		
Capital stock	\$200,000.00	
Paid on account construction above capital stock	16,017.02	
Profit and loss balance	1,670.88	
Total liabilities (as per books of the company)		\$217,687.90
DESCRIPTION OF ROAD.		
Main line of road from Profile House to Bethlehem Junction and Bethlehem	13½ miles.	
Total length of steel rails in tracks, not including steel-top rails	13½ "	
[Weight per yard, 10 miles, 35 lbs. steel.]		
[Weight per yard, 3½ miles, 40 lbs. steel.]		
EQUIPMENT.		
Number of locomotives	3	
Number of passenger cars	4	
Number of baggage, mail, and express cars (one baggage and two combination cars)	3	
Number of freight cars (basis of 8 wheels)	6	
Number of other cars	13	
GENERAL INFORMATION.		
Number of locomotives equipped with train brake [Kind of brake, Westinghouse power brake.]	3	
Number of cars equipped with train brake	7	
Number of passenger cars with Miller platform and buffer	7	
BRIDGES.		
Number of spans of iron bridges of 25 feet and upwards*	1	
Aggregate length of same for single track	290 ft.	

* On miles of road owned in New Hampshire.

Number of spans of timber bridges of 25 feet and upwards *	2
Aggregate length of same for single track 130 ft.	
Number of crossings of highways at grade *	3
Number of crossings at which there are neither signals nor flagmen *	3
Number of railroad crossings at grade : *	3
Bethlehem Junction.	
Maplewood.	
Bethlehem.	
CAPITAL STOCK.	
Capital stock authorized by charter . \$200,000	
Capital stock authorized by votes of company . 200,000	
Capital stock issued (number of shares, 2,000) ; amount paid in	\$200,000.00
Total amount paid in (as per books of the company)	200,000.00
Total number of stockholders	57
Number of stockholders in New Hampshire	44
Amount of stock held in New Hampshire \$155,400	

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President* and *Auditor*, Manchester, N. H. ; C. H. Greenleaf, *Superintendent*, Profile House, N. H. ; G. T. Cruft, *General Freight Agent*, Maplewood, N. H. ; C. F. Eastman, *General Passenger Agent*, Profile House, N. H. ; C. H. Greenleaf, *Treasurer*, Profile House, N. H. ; John P. George, *Clerk of Corporation, pro tem.*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Manchester, N. H. ; Walter Aiken, Franklin, N. H. ; C. F. Eastman, Littleton, N. H. ; Isaac S. Cruft, Amos Barnes, Boston, Mass. ; B. C. White, John P. George, Concord, N. H. ; Frank Jones, Portsmouth, N. H.

PROPER ADDRESS OF THE COMPANY :

PROFILE & FRANCONIA NOTCH RAILROAD COMPANY,

PROFILE HOUSE, N. H.

* On miles of road owned in New Hampshire.

CHAS. F. EASTMAN,
Director.

C. H. GREENLEAF,
Treasurer.

C. H. GREENLEAF,
Superintendent.

STATE OF NEW HAMPSHIRE.

GRAFTON, ss. October 24, 1888. Then personally appeared Charles F. Eastman, director, and C. H. Greenleaf, treasurer and superintendent, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. H. BAILEY, *Justice of the Peace.*

REPORT

OF THE

SULLIVAN COUNTY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$230,507.11
Total expense (including taxes)	169,541.03
Net income	60,966.08
Rentals:	3,600.00
Central Vermont Railroad Company . \$3,600.00	
Interest accrued during year:	13,151.36
On unfunded debt \$13,151.36	
Dividends declared (8 per cent)	40,000.00
Balance for year (surplus)	4,214.72
Balance at commencement of year \$35,293.82	
Balance at commencement of year as so changed	35,293.82
Balance September 30, 1888 (surplus)	39,508.54
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$18,939.69
From through passengers (to and from other roads over and beyond this road)	58,498.85
From express and extra baggage	3,640.00
From mails	4,913.65
Total earnings from passenger department	85,992.19
From local freight (all freight starting from or stopping at any station on this road) *	9,735.87
From through freight (to and from other roads over and beyond this road)	134,494.55
Total earnings from freight department	144,230.42
Total transportation earnings	230,222.61
Income from all other sources, viz.:	284.50
Rents from real estate \$284.50	
Total income from all sources	\$230,507.11

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$6,733.62
Legal expenses	470.19
Insurance	484.00
Stationery and printing	949.92
Outside agencies and advertising	340.15
Contingencies and miscellaneous	403.50
Repairs of bridges (including culverts and cattle- guards)	4,235.63
Repairs of buildings	4,135.40
Repairs of fences, road-crossings, and signs	725.14
Renewal of rails	5,958.38
[No. tons steel laid, 153.912.]	
Renewal of ties	4,082.90
[No. laid, 9,872.]	
Repairs of road-bed and track	22,110.66
Repairs of locomotives	9,819.37
Fuel for locomotives	29,063.44
[Tons of coal, 6,842.]	
Water supply	450.09
Oil and waste	1,488.16
Locomotive service *	13,502.39
Repairs of passenger cars	633.05
Passenger-train service *	2,466.84
Passenger-train supplies	67.43
Mileage passenger cars †	7,556.40
Repairs of freight cars	5,559.19
Freight-train service *	10,504.36
Freight-train supplies	618.23
Mileage freight cars †	17,516.59
Telegraph expenses	605.85
Agents' and station service *	11,631.46
Station supplies	1,225.55
Total operating expenses	\$163,337.89
Taxes, state	6,146.69
“ local	56.45
Total operating expenses and taxes	\$169,541.03
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Grading and masonry	\$8,685.98
Land, land damages, and fences	13,083.41
Passenger and freight stations, wood-sheds, and water-stations	2,050.00
Total for construction	\$23,819.39

* Salaries and wages. † Debit balances.

Locomotives	\$4,566.21	
Total for equipment		\$4,566.21
Total charges to property accounts		\$28,385.60
Net addition to property accounts for the year		28,385.60

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and other real estate	\$692,882.89	
Cost of equipment	32,938.02	
Total permanent investments		\$725,820.91
Due from agents and companies	\$127.56	
Total cash assets		127.56
Profit and loss balance		186.71
Total assets (as per books of the company)		\$726,135.18

LIABILITIES.

Capital stock		\$500,000.00
Unfunded debt, viz.:		186,626.64
Notes payable	\$25,000.00	
Vouchers and accounts	161,626.64	
Profit and loss balance (income account)		39,508.54
Total liabilities (as per books of the company)		\$726,135.18

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	67,918
Freight-train mileage	101,675
Total revenue train mileage	169,593
Switching-train mileage	29,473
Other train mileage	17,542
Total train mileage	216,608
Number of local passengers (including season)	42,864
Number of through passengers (to and from other roads going over and beyond this road)	94,894
Total number of passengers carried	137,758
Local passenger mileage (local passengers carried one mile)	621,049
Through passenger mileage (through passengers carried one mile)	2,141,561
Total passenger mileage	2,762,610

Number tons local freight	12,471
Number tons through freight (to and from other roads, going over and beyond this road) . . .	594,421
Total number tons freight carried	606,892
Local freight mileage (tons local freight carried one mile)	232,333
Through freight mileage (tons through freight carried one mile) *	15,314,972
Total freight mileage	15,547,305
Average number of persons employed	122

DESCRIPTION OF ROAD.

Main line of road from Bellows Falls, Vt., to Windsor, Vt.	26.000 miles.
Main line of road in New Hampshire	25.810 "
" " in Vermont . . . . .	.190 "
Double track on main line	8.681 "
Same in New Hampshire	8.681 "
Total road belonging to this company	26.000 "
Sidings and other tracks not above enumerated	4.871 "
Same in New Hampshire	4.871 "
Total length of track, computed as single track	39.552 "
Same in New Hampshire	39.362 "
Total length of steel rails in tracks, not including steel-top rails	38.984 "
[Weight per yard, 56 and 66 lbs.]	
Total miles of road operated by this company	26.000 "
Total miles of road operated by this company in New Hampshire	25.810 "
Number of stations in New Hampshire on all roads operated by this company	6
Number of telegraph offices in same	5
Number of stations on all roads owned by this company	8
Same in New Hampshire	6

EQUIPMENT.

Number of locomotives leased	10
--	----

BRIDGES.

Number of spans of stone bridges of 25 feet and upwards †	1
Aggregate length of same for single track 26 ft.	
Number of spans of iron bridges of 25 feet and upwards †	4

* Carried to and from other roads.

† In New Hampshire, on miles of road owned.

Aggregate length of same for single track	639 ft.	
Number of spans of timber bridges of 25 feet and upwards *		8
Aggregate length of same for single track	1,174 ft.	
Number of crossings of highways at grade *		29
“ “ “ over railroad		2
“ “ “ under “		3
Number of highway bridges 18 feet above track		2
Number of crossings at which there are neither signals nor flagmen *		29

RATES OF FARE, ETC.		
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †		3.049 cents.
Average rate of fare per mile received from passengers to and from other roads	2.731	“
Average rate of fare per mile received from all passengers	2.803	“
Average rate of local freight per ton per mile †	4.147	“
Average rate of freight per ton per mile received from freight to and from other roads	.930	“
Average rate of freight per ton per mile received from all freight	.928	“

CAPITAL STOCK.		
Capital stock authorized by charter	\$500,000	
Capital stock authorized by votes of company	500,000	
Capital stock issued (number of shares, 5,000); amount paid in		\$500,000.00
Total amount paid in (as per books of the company)		500,000.00
Total number of stockholders	9	

NAMES AND RESIDENCES OF OFFICERS.

A. B. Harris, *President*, Springfield, Mass.; W. H. Wilson, *Auditor*, Springfield, Mass.; J. Mulligan, *Superintendent*, Springfield, Mass.; H. E. Howard, *General Freight Agent*, Springfield, Mass.; E. C. Watson, *General Ticket Agent*, Springfield, Mass.; E. F. Lane, *Treasurer*, Keene, N. H.; J. H. Albin, *Clerk of Corporation*, Concord, N. H.

* On miles of road owned in New Hampshire. † Rates as per tariff.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

A. B. Harris, Springfield, Mass.; H. C. Robinson, Hartford, Vt.; Frederick Billings, Woodstock, Vt.; J. H. Williams, Bellows Falls, Vt.; C. J. Amidon, Hinsdale, N. H.; J. H. Albin, Concord, N. H.; N. E. Martin, Concord, N. H.

PROPER ADDRESS OF THE COMPANY:

THE SULLIVAN COUNTY RAILROAD COMPANY,
SPRINGFIELD, HAMPDEN COUNTY, MASS.

A. B. HARRIS, *President.*

JAMES H. WILLIAMS,

J. H. ALBIN,

NATHANIEL E. MARTIN,

Directors.

J. MULLIGAN, *Superintendent.*

STATE OF VERMONT.

WINDHAM, ss. January 30, 1889. Then at Bellows Falls, in said county and State, personally appeared James H. Williams and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

PRESTON H. HADLEY, *Notary Public.*

COMMONWEALTH OF MASSACHUSETTS.

HAMPDEN, ss. January 29, 1889. Then personally appeared J. Mulligan and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE E. FRINK, *Justice of the Peace.*

STATE OF NEW YORK.

NEW YORK, ss. January 14, 1889. Then personally appeared A. B. Harris and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JAMES C. GATES, *Notary Public.*

REPORT

OF THE

WHITEFIELD & JEFFERSON RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1888.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$34,346.68
Total expense (including taxes)	24,898.47
Net income	9,448.21
Dividends declared (6 per cent)	10,200.00
Balance for the year (deficit)	751.79
Balance at commencement of year	\$17,557.34
Balance at commencement of year as so changed	17,557.34
Balance September 30, 1888 (surplus)	16,805.55

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *	\$1,528.81
From through passengers (to and from other roads over and beyond this road)	1,146.28
From express and extra baggage	100.00
From mails	363.36
Total earnings from passenger department	3,138.45
From local freight (all freight starting from or stopping at any station on this road) *	28,371.32
From through freight (to and from other roads over and beyond this road)	192.08
From other sources, freight department	850.83
Total earnings from freight department	29,414.23
Total transportation earnings	32,552.68

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz.:		\$1,794.00
Rent of buildings	\$144.00	
Locomotive service	1,650.00	
Total income from all sources		\$34,346.68

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks		\$309.75
Insurance		388.50
Stationery and printing		144.37
Outside agencies and advertising		20.00
Contingencies and miscellaneous		2,175.33
Repairs of bridges (including culverts and cattle-guards)		379.86
Repairs of buildings		378.24
Repairs of fences, road-crossings, and signs		68.67
Renewal of ties		510.18
[No. laid, 2,319.]		
Repairs of road-bed and track		3,227.34
Repairs of locomotives		2,032.68
Fuel for locomotives		6,396.95
[Cords of wood, 2,498.]		
Oil and waste		327.05
Locomotive service *		3,622.72
Repairs of passenger cars		580.39
Passenger-train service *		276.00
Passenger-train supplies		20.11
Repairs of freight cars		1,036.18
Freight-train service *		1,913.93
Freight-train supplies		40.73
Mileage freight cars †		97.79
Telephone expenses		20.00
Agents' and station service *		860.75
Station supplies		51.55
Total operating expenses		\$24,879.07
Taxes, local		19.40
Total operating expenses and taxes		\$24,898.47

BALANCE-SHEET, SEPTEMBER 30, 1888.

ASSETS.

Cost of road and equipment	\$189,504.39	
Total permanent investments		\$189,504.39

* Salaries and wages.

† Debit balances.

Cash	\$450.30	
Total cash assets		\$450.30
Total assets (as per books of the company)		\$189,954.69
LIABILITIES.		
Capital stock		\$170,000.00
Vouchers and accounts, A. L. Brown, superintendent		3,149.14
Profit and loss balance		16,805.55
Total liabilities (as per books of the company)		\$189,954.69
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage	15,260	
Freight-train mileage	12,950	
Total revenue train mileage	28,210	
Switching-train mileage	7,825	
Other train mileage	3,500	
Total train mileage	39,535	
Number of local passengers (including season)	4,585	
Number of through passengers (to and from other roads going over and beyond this road)	1,763 $\frac{1}{2}$	
Total number of passengers carried	6,348 $\frac{1}{2}$	
Local passenger mileage (local passengers carried one mile)	42,076	
Through passenger mileage (through passengers carried one mile)	17,635	
Total passenger mileage	59,711	
Number tons local freight	36,123 $\frac{557}{2000}$	
Number tons through freight (to and from other roads going over and beyond this road)	95 $\frac{1858}{2000}$	
Total number tons freight carried	36,219 $\frac{415}{2000}$	
Local freight mileage (tons local freight carried one mile)	309,713 $\frac{888}{2000}$	
Through freight mileage (tons through freight carried one mile)*	959 $\frac{580}{2000}$	
Total freight mileage	310,673 $\frac{478}{2000}$	
Average number of persons employed	30	
DESCRIPTION OF ROAD.		
Main line of road from Whitefield to Jefferson	13 miles.	
Main line of road in New Hampshire	13 "	
Branches owned by this company, viz.: Camp Carroll	5 "	
Total road belonging to this company	18 "	

* Carried to and from other roads.

Sidings and other tracks not above enumerated	3 miles.
Same in New Hampshire	3 "
Total length of track, computed as single track	21 "
Same in New Hampshire	21 "
Total length of steel rails in tracks, not including steel-top rails	13 "
[Weight per yard, 50 lbs.]	
Total miles of road operated by this company	18 "
Total miles of road operated by this company in New Hampshire	18 "
Number of stations in New Hampshire on all roads operated by this company	4
Number of telephone offices in same	2
Number of stations on all roads owned by this com- pany	4
Same in New Hampshire	4

EQUIPMENT.

	Owned.	Total.
Number of locomotives.....	4	4
Number of passenger cars.....	2	2
Number of freight cars (basis of 8 wheels) comprising 15 platform cars and 50 4-wheel platform cars.....	55	55
Number of other cars.....	4	4

GENERAL INFORMATION.

Maximum weight of locomotives in working order.	30 tons.
Average " " " " " "	24 "
Maximum weight of tenders full of fuel and water	12 "
Average " " " " " "	10 "
Maximum weight of passenger cars	16 "
Average " " " " " "	16 "
Average weight of mail and baggage cars	12 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	41 feet.
Total length of heaviest engine and tender over all	46 "
Number of locomotives equipped with train brake.	2
[Kind of brake, Westinghouse.]	
Number of cars equipped with train brake	2
[Kind of brake, Westinghouse.]	
Number of passenger cars with Miller platform and buffer	2

BRIDGES.	
Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 505 ft.	
Number of crossings of highways at grade*	4
Number of crossings at which there are neither signals nor flagmen*	4
RATES OF FARE, ETC.	
Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3½ cents.
Average rate of fare per mile received from passengers to and from other roads	6½ "
Average rate of fare per mile received from all passengers	4½ "
Average rate of local freight per ton per mile †	9¼ "
Average rate of freight per ton per mile received from freight to and from other roads	20 "
Average rate of freight per ton per mile received from all freight	9 "
CAPITAL STOCK.	
Capital stock authorized by charter \$200,000	
Capital stock authorized by votes of company 200,000	
Capital stock issued (number of shares, 1,700); amount paid in	\$170,000.00
Total amount paid in (as per books of the company)	170,000.00
Total number of stockholders 2	
Number of stockholders in New Hampshire 1	
Amount of stock held in New Hampshire \$85,000	

NAMES AND RESIDENCES OF OFFICERS.

Nathan R. Perkins, *President*, Jefferson, N. H.; Alson L. Brown, *Superintendent*, Whitefield, N. H.; Edward D. Harlow, *Treasurer*, Boston, Mass.; Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

* In New Hampshire on miles of road owned. † Rates as per tariff.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George C. Lord, Boston, Mass. ; A. L. Brown, Whitefield, N. H. ; Samuel N. Bell, Manchester, N. H. ; Warren G. Brown, Whitefield, N. H. ; C. E. A. Bartlett, Boston, Mass. ; N. R. Perkins, Jefferson, N. H. ; William A. Stowell, Montpelier, Vt. ; Ossian Ray, Lancaster, N. H.

PROPER ADDRESS OF THE COMPANY :

WHITEFIELD & JEFFERSON RAILROAD COMPANY.

Superintendent and Cashier's Office, WHITEFIELD, N. H.

Treasurer's and Transfer Office, 31 MILK STREET, BOSTON, MASS.

A. L. BROWN,
W. G. BROWN,
Directors.

A. L. BROWN,
Superintendent.

STATE OF NEW HAMPSHIRE.

COOS, ss. November 22, 1888. Then personally appeared A. L. Brown and W. G. Brown, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JAMES C. TRICKEY, *Justice of the Peace.*

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. December 21, 1888. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE N. CARPENTER, *Justice of the Peace.*

STREET RAILWAY REPORTS.

REPORT

OF THE

CONCORD STREET RAILWAY COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1888.

CAPITAL STOCK AND DEBT.		
CAPITAL STOCK.		
Capital stock authorized by charter	\$50,000.00	
Capital stock authorized by votes of company	50,000.00	
Capital stock paid (par value of shares, \$100)		\$50,000.00
Number of stockholders	74	
DEBT.		
Unfunded debt, as follows:		\$4,900.00
Notes payable	\$4,900.00	
Total gross debt		4,900.00
Amount of cash assets, viz.:		4,546.25
Cash	\$3,563.25	
Supplies	983.00	
Net debt		\$353.75
PERMANENT INVESTMENTS.		
RAILWAY.		
Grading and paving	}	\$32,165.49
Track, including timber, rails, etc., and laying		
Interest during construction, commissions, dis-		
counts, etc.		
Engineering, agencies, salaries, and other ex-	}	32,165.49
penses during construction		
Total cost of construction		

EQUIPMENT.	
Horses (14)	\$1,630.00
Cars (12)	10,150.00
Two steam motors	5,500.00
Other articles of equipment	2,868.04
Total cost of equipment	\$20,148.04
LAND AND BUILDINGS.	
Land owned by company needed in operating road }	\$8,175.00
Buildings " " " " }	
Total cost of land and buildings	8,175.00
Total amount of permanent investments	\$60,488.53
Cash assets	4,546.25
Total property and assets of company	\$65,034.78
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
New cars (1)	\$780.79
Other equipment	145.53
Land and buildings	620.00
Total addition to property	\$1,546.32
Net addition to property for the year	1,546.32
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$20,077.02
Received from mails and express	32.53
Received from sales of manure	203.00
Total earnings	\$20,312.55
Income from other sources, viz.:	118.30
Blacksmith shop	\$21.08
Rent of house	62.22
Pigs sold	35.00
Total income from all sources	\$20,430.85
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$2,826.53
Repairs of cars and other vehicles, harness, and horseshoeing, and sundry expenses	2,196.99

Wages and salaries of president, treasurer, superintendent, and their clerks	\$700.00
Wages and salaries of all other persons employed in operating the road	6,471.46
Provender and coal	4,853.88
Insurance	173.01
Total expenses of operating	<u>\$17,221.87</u>

NET INCOME, DIVIDENDS, ETC.

Total net income above operating expenses . . .	\$3,208.98
Interest paid during the year	227.91
Dividends declared and paid (6 per cent for the year)	3,000.00
Surplus at commencement of year . . . \$10,325.55	
Add increased value of equipment \$135.53	
Increased value of real estate 120.00	
Increased value of cash assets 2,443.70	
	<u>2,699.23</u>
Total surplus December 31, 1888	13,024.78

INVENTORY OF EQUIPMENT.

Box-cars	5
Open cars	7
Horses	14
Harnesses, pairs of	13
Omnibuses	1
Sleighs	1
Other articles of equipment:	
Steam motors	2
Snow-plow for horses	1
Snow-plow for steam	1
Carts, wagons, and sleds	6
Largest number of horses owned at any time during the year	16
Smallest number of horses owned at any time during the year	14
Average number of horses owned during the year	14

GENERAL BALANCE-SHEET, DEC. 31, 1888.

ASSETS.	
Construction	\$32,165.49
Equipment	20,148.04
Land and buildings	8,175.00
Cash and cash assets	4,546.25
Total assets	<u>\$65,034.78</u>

LIABILITIES.	
Capital stock	\$50,000.00
Unfunded debt	4,900.00
Surplus	10,134.78
Total liabilities	\$65,034.78
COPY OF PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDING DEC. 31, 1888.	
DR.	
To expenses	\$17,221.87
interest	227.91
dividends	3,000.00
surplus for the year	2,871.07
balance carried forward December 31, 1888	10,134.78
	\$33,455.63
CR.	
By balance January 1, 1888	\$10,325.55
total income	20,430.85
increased value real estate	120.00
equipment	135.53
cash assets	2,443.70
	\$33,455.63
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	7.00 miles.
Aggregate length of switches, sidings, etc. . . . .	.75 "
Total length of track, measured as single track	7.75 "
Total length of track paved	2.00 "
Weight of rail per yard, and description of rail: Steel T rails, 25 and 30 lbs.; iron flat rails, 34 lbs.	
MILES RUN, ETC.	
Total number of miles run during the year	88,330
Total number of passengers carried in the cars	260,000
Total number of round trips for the year	10,220
Number of persons regularly employed by company	14
Rates of fare: 6 cents, 5 tickets for 25 cents; 10 cents, 3 tickets for 25 cents; 17 cents, 4 tickets for 60 cents.	

PROPER ADDRESS OF THE COMPANY:

CONCORD HORSE RAILROAD,

CONCORD, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Moses Humphrey, *President and Superintendent*, Concord, N. H.;
Edgar C. Hoague, *Treasurer*, Concord, N. H.; Nathaniel E. Martin,
Clerk of Corporation, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Moses Humphrey, Howard A. Dodge, A. Frank Holt, Paul R.
Holden, George A. Cummings, John H. Albin, Concord, N. H.;
John C. Pearson, Penacook, N. H.

MOSES HUMPHREY,
PAUL R. HOLDEN,
HOWARD A. DODGE,
JOHN H. ALBIN,

Directors.

EDGAR C. HOAGUE,

Treasurer.

MOSES HUMPHREY,

Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. January 21, 1889. Then personally appeared
Moses Humphrey, Paul R. Holden, Howard A. Dodge, John H.
Albin, and Edgar C. Hoague, and severally made oath to the truth
of the foregoing statement by them subscribed, according to their
best knowledge and belief.

NATHANIEL E. MARTIN, *Justice of the Peace.*

REPORT

OF THE

MANCHESTER HORSE RAILWAY COMPANY

FOR THE YEAR ENDING OCTOBER 1, 1888.

CAPITAL STOCK AND DEBT.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$100,000.00
Capital stock authorized by votes of company	25,000.00
Capital stock paid (par value of shares, \$100)	\$25,000.00
Number of stockholders	17
DEBT.	
Notes to Merrimack River Savings Bank, \$22,500.00	
Total gross debt	\$22,500.00
Amount of cash assets, viz.:	11.45
Cash	\$11.45
Net debt	\$22,488.55
PERMANENT INVESTMENTS.	
RAILWAY, EQUIPMENT, LAND, BUILDINGS, AND OTHER PROPERTY.	
Total cost of construction, equipment, land, build- ings, and other property	\$47,500.00
Total amount of permanent investments	47,500.00
Cash assets	11.45
Total property and assets of company	\$47,511.45

PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
New horses	13
New cars	2
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$41,942.70
Received from sales of manure	355.50
Total earnings	\$42,298.20
Income from other sources:	1,278.67
Rents	\$346.28
Horses	650.80
Material	281.59
Total income from all sources	\$43,576.87
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$697.22
Repairs of cars and other vehicles, harness, and horseshoeing	6,068.03
Repairs of buildings	278.95
Renewal of horses	3,312.50
Wages and salaries of president, treasurer, super- intendent, and their clerks	2,024.89
Wages and salaries of all other persons employed in operating the road	14,694.24
Provender	11,227.70
Taxes, state and local	15.14
Depreciation account	1,000.00
Interest paid on debt	1,134.56
Insurance	117.12
Damages for injuries to persons and property	265.00
Office expenses, and all other expenses not included above	1,482.72
Total expenses of operating	\$42,318.07
NET INCOME, DIVIDENDS, ETC.	
Total net income above operating expenses	\$1,258.80
Dividends declared (6 per cent for the year)	1,500.00
Surplus at commencement of year, Octo- ber 1, 1887	\$252.65

Deduct	\$241.20	
Surplus at commencement of year as changed by aforesaid entries		\$11.45
Total surplus September 30, 1888		11.45

INVENTORY OF EQUIPMENT.

Box-cars	13
Open cars	9
Horses	100
Harnesses (pairs of)	30
Other articles of equipment:	
Snow-plows	2
Sleds	3
Largest number of horses owned at any time during the year	100
Smallest number of horses owned at any time during the year	92
Average number of horses owned during the year	96

GENERAL BALANCE-SHEET, SEPT. 30, 1888.

ASSETS.

	ASSETS.	
Construction . .	}	
Equipment . .		
Land and buildings . .		\$47,500.00
Other property . .		
Cash and cash assets		11.45
Total assets		<u>\$47,511.45</u>

LIABILITIES.

Capital stock	\$25,000.00
Unfunded debt	22,500.00
Surplus	11.45
Total liabilities	\$47,511.45

COPY OF PROFIT AND LOSS ACCOUNT FOR
THE YEAR ENDING SEPT. 30, 1888.

DR.

To expenses	\$42,318.07
dividends	1,500.00
balance carried forward September 30, 1888 .	11.45
	<hr/>
	\$43,829.52

CR.	
By balance September 30, 1887	\$252.65
total income	43,576.87
	\$43,829.52
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	9.00 miles.
Aggregate length of switches, sidings, etc. . . .	.04 "
Total length of track, measured as single track . .	9.04 "
Total length of track paved	8.75 "
[Weight of rail per yard, 27 and 34 lbs.]	
Total length of railway, measured as single track, not including sidings, etc., operated by this company	9.00 "
MILES RUN, ETC.	
Total number of miles run during the year . . .	260,995
Total number of passengers carried in the cars . .	838,854
Total number of round trips for the year . . .	89,145
Number of persons regularly employed by company	28
Rates of fare	5 cents.

LIST OF ACCIDENTS.

	From causes beyond their own control.		From their own misconduct or carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	1	.....	1
Employés
Others	1	.....	1

STATEMENT OF EACH ACCIDENT.

On October 29, 1887, John A. Osgood, 72 years of age, fell from the forward platform of car No. 4, as it was passing the curve at the corner of Canal and Depot streets. The car was going very slowly at the time of the accident, and no blame whatever could be attached to any employé of the company, as the driver had requested Mr. Osgood to go inside, but he replied that he preferred to ride upon the platform. In falling he struck upon the back of his head. His wife, who was inside at the time, said that he was subject to dizzy spells, and supposed that the fall was occasioned by one of them, which appeared to be true, as he let go the railing and threw up his hands before losing his balance and falling.

On February 29, 1888, Caleb Gage and John L. Wentworth were riding rapidly in a job team which collided with car No. 5 at the corner of Chestnut street and Lake avenue. The city had placed snow upon the track at the crossing, and as the car came in contact with it, the forward wheels left the rails, and at the same moment the team struck the forward end of the car and threw Mr. Gage forward upon the horses, while Mr. Wentworth, the owner of the team, fell to the ground.

PROPER ADDRESS OF THE COMPANY:

MANCHESTER HORSE RAILROAD,
MANCHESTER, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H.; A. Quincy Gage, *Superintendent*, Manchester, N. H.; Frederick Smyth, *Treasurer*, Manchester, N. H.; James A. Weston, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Frederick Smyth, James A. Weston, Samuel N. Bell, Josiah Carpenter, Freeman Higgins, Manchester, N. H.

S. N. BELL,
FREDERICK SMYTH,
JOSIAH CARPENTER,
JAMES A. WESTON,
FREEMAN HIGGINS,

Directors.

FREDERICK SMYTH,

Treasurer.

A. QUINCY GAGE,

Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. January 10, 1889. Then personally appeared S. N. Bell, Frederick Smyth, Josiah Carpenter, James A. Weston, Freeman Higgins, and A. Q. Gage, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

CHARLES F. MORRILL, *Justice of the Peace.*

REPORT

OF THE

NASHUA STREET RAILWAY COMPANY

FOR THE YEAR ENDING OCTOBER 1, 1888.

CAPITAL STOCK AND DEBT.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$50,000
Capital stock authorized by votes of company	20,000
Capital stock paid (par value of shares, \$50)	\$20,000.00
Number of stockholders	31
DEBT.	
Unfunded debt	\$20,756.00
Total gross debt	20,756.00
Amount of cash assets, viz.:	518.24
Cash	\$212.45
Supplies	305.79
Net debt	\$20,237.76
PERMANENT INVESTMENTS.	
RAILWAY.	
Total cost of construction	\$23,473.31
EQUIPMENT.	
Horses	\$7,010.00
Cars	7,316.34
Other articles of equipment	271.44
Total cost of equipment	\$14,597.78

LAND AND BUILDINGS.	
Land owned by company needed in operating road	\$1,000.00
Buildings owned by company needed in operating road	5,880.44
Total cost of land and buildings	\$6,880.44
Total amount of permanent investments	20,000.00
Cash assets	518.24
Total property and assets of company	\$45,469.77
PROPERTY ACCOUNTS : CHARGES AND CREDITS DURING THE YEAR.	
Extension of tracks	\$13,473.31
New horses (26)	4,010.00
New cars (6)	4,316.34
Other equipment	271.44
Land and buildings	2,880.44
Total addition to property	\$24,951.53
Net addition to property for the year	24,951.53
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$15,129.65
Received from sales of manure	187.50
Income from other sources	861.13
Total income from all sources	\$16,178.28
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$186.20
Repairs of cars and other vehicles, harness, and horseshoeing	704.27
Repairs on buildings	127.66
Wages and salaries of president, treasurer, superintendent, and their clerks	950.00
Wages and salaries of all other persons employed in operating the road	5,911.82
Provender	3,346.52
Water, gas, fuel, etc.	267.41
Interest	153.65
Insurance	134.24

Office expenses, and all other expenses not included above	\$580.20
Total expenses of operating	\$12,361.97
NET INCOME, DIVIDENDS, ETC.	
Total net income above operating expenses . . .	\$3,816.31
Balance for the year, or surplus	4,713.77
Surplus at commencement of year . . . \$897.46	
Add	3,816.31
Total surplus October 1, 1888	4,713.77
INVENTORY OF EQUIPMENT.	
Box-cars	5
Open cars	7
Horses	49
Other articles of equipment:	
Sled	1
Buggy	1
Wagon	1
Carts	2
Snow-sweeper	1
Largest number of horses owned at any time during the year	51
Smallest number of horses owned at any time during the year	23
Average number of horses owned during the year	40
GENERAL BALANCE-SHEET, OCT. 1, 1888.	
ASSETS.	
Construction	\$23,473.31
Equipment	14,597.78
Land and buildings	6,880.44
Cash and cash assets	518.24
Total assets	\$45,469.77
LIABILITIES.	
Capital stock	\$20,000.00
Funded debt	20,756.00
Surplus	4,713.77
Total liabilities	\$45,469.77

COPY OF PROFIT AND LOSS ACCOUNT FOR
THE YEAR ENDING OCT. 1, 1888.

DR.

To expenses	\$12,361.97
balance carried forward October 1, 1888	4,713.77
	<hr/> \$17,075.74

CR.

By balance October 1, 1887	\$897.46
total income	16,178.28
	<hr/> \$17,075.74

DESCRIPTION OF RAILWAY.

Length of railway owned by company, measured as a single track, exclusive of sidings	20,789 feet.
Aggregate length of switches, sidings, etc.	2,088 "
Total length of track, measured as single track	22,877 "
Total length of track paved	3 miles.
[Weight of rail per yard, 35 lbs.]	
Description of the several lines or routes operated by the company:	
Main Line comprising Kinsley, Main, and Canal streets, Harbor Line, and West Pearl-street Line.	
Total length of railway, measured as single track, not including sidings, etc., operated by this company	20,789 feet.

MILES RUN, ETC.

Total number of miles run during the year	72,844
Total number of passengers carried in the cars	302,593
Total number of round trips for the year	18,211
Number of persons regularly employed by company	12
Rates of fare	5 cents.

PROPER ADDRESS OF THE COMPANY:

NASHUA STREET RAILWAY,

NASHUA, N. H.

NAMES AND RESIDENCES OF OFFICERS.

George H. Knowles, *President*, Boston, Mass.; Charles H. Porter, *Superintendent*, Nashua, N. H.; John D. Chandler, *Treasurer*, Nashua, N. H.; John D. Chandler, *Clerk of Corporation*, Nashua, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George H. Knowles, Boston, Mass.; John H. Fisher, John D. Chandler, William H. Knowles, Henry Stearns, Ira F. Harris, Nashua, N. H.; Charles Williams, Manchester, N. H.

GEORGE H. KNOWLES,
JOHN H. FISHER,
JOHN D. CHANDLER,
WILLIAM H. KNOWLES,
CHARLES WILLIAMS,
IRA F. HARRIS,

Directors.

JOHN D. CHANDLER,

Treasurer.

CHARLES H. PORTER,

Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. February 2, 1889. Then personally appeared George H. Knowles, John H. Fisher, William H. Knowles, John D. Chandler, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

C. H. CAMPBELL,

Justice of the Peace and quorum throughout the State.

REPORT

OF THE

LACONIA & LAKE VILLAGE STREET
RAILWAY COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1888.

CAPITAL STOCK AND DEBT.		
CAPITAL STOCK.		
Capital stock authorized by charter	\$30,000	
Capital stock authorized by votes of company	20,000	
Capital stock paid (par value of shares, \$50)		\$20,000.00
Number of stockholders	37	
DEBT.		
Unfunded debt, as follows:		\$6,816.91
Notes payable	\$6,100.00	
Accounts payable	716.91	
Total gross debt		\$26,816.91
Amount of cash assets, viz.:		776.09
Cash	\$550.09	
Supplies	226.00	
Net debt		\$26,040.82
PERMANENT INVESTMENTS.		
RAILWAY.		
Grading and paving	}	\$10,443.57
Track, including timber, rails, etc., and laying		
Interest during construction, commissions, dis-		
counts, etc.		

Engineering, agencies, salaries, and other expenses during construction	\$240.00
Total cost of construction	\$10,683.57
EQUIPMENT.	
Horses	\$3,217.50
Cars	5,976.00
Other articles of equipment	2,570.00
Total cost of equipment	\$11,763.50
LAND AND BUILDINGS.	
Total cost of land and buildings	\$8,570.96
Total amount of permanent investments	\$31,018.03
Cash assets	776.09
Total property and assets of company	\$31,794.12
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Extension of tracks (309 feet)	\$383.57
New horses (4)	690.00
New cars (2)	1,379.00
Other equipment (1 sleigh)	218.00
Land and buildings	525.96
Total addition to property	\$3,196.53
Property sold or reduced in valuation on the books:	1,272.50
Horses (4)	\$722.50
Building	550.00
Net addition to property for the year	\$1,924.03
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$8,336.66
Received from sales of manure	119.90
Total earnings	\$8,456.56

Income from other sources:	\$524.24
Advertising, etc.	\$87.07
Barge	132.00
Rents	154.59
Pigs	150.58
Total income from all sources	\$8,980.80

EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.

Repairs of road-bed and track	\$453.53
Repairs of cars and other vehicles, harness, and horseshoeing	670.20
Wages and salaries of president, treasurer, and their clerks	125.00
Wages and salaries of all other persons employed in operating the road	3,014.20
Provender	2,277.74
Insurance	227.50
Office expenses and all other expenses not included above	492.74
Total expenses of operating	\$7,260.91

NET INCOME, DIVIDENDS, ETC.

Total net income above operating expenses . . .	\$1,719.89
Interest accrued during the year	367.77
Dividends declared (6 per cent for the year) . . .	900.00
Balance for the year, or surplus	352.12
Surplus at commencement of year . . . \$5,015.09	
Deduct 490.00	
Surplus at commencement of year as changed by aforesaid entries	4,525.09
Total surplus December 31, 1888	\$4,977.21

INVENTORY OF EQUIPMENT.

Box-cars	4
Open cars	4
Horses	20
Harnesses (pairs of)	8
Barges	2
Sleighs	6
Other articles of equipment:	
Wagon, tip-cart, platform car, and snow-plow.	

Largest number of horses owned at any time during the year	23
Smallest number of horses owned at any time during the year	20
Average number of horses owned during the year	21
<hr/>	
GENERAL BALANCE-SHEET, DEC. 31, 1888.	
ASSETS.	
Construction	\$10,683.57
Equipment	11,763.50
Land and buildings	8,570.96
Cash and cash assets	776.09
Total assets	\$31,794.12
<hr/>	
LIABILITIES.	
Capital stock	\$20,000.00
Unfunded debt	6,816.91
Surplus	4,977.21
Total liabilities	\$31,794.12
<hr/>	
COPY OF PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDING DEC. 31, 1888.	
DR.	
To expenses	\$7,260.91
interest	367.77
dividends	900.00
profit and loss account	490.00
balance carried forward January 1, 1889	4,977.21
	\$13,995.89
<hr/>	
CR.	
By balance January 1, 1888	\$5,015.09
total income	8,980.80
	\$13,995.89
<hr/>	
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	2.136 miles.
Aggregate length of switches, sidings, etc. . . . .	.169 "

Total length of track, measured as single track . . .	2.305 miles.
Total length of track paved . . . . .	.015 "
Weight of rail per yard, and description of rail: Street, 34 lbs; T, 25 lbs.	
Total length of railway, measured as single track, not including sidings, etc., operated by this com- pany	2.136 "
MILES RUN, ETC.	
Total number of miles run during the year . . .	44,144
Total number of passengers carried in the cars . .	164,424
Total number of round trips for the year . . .	10,387
Number of persons regularly employed by company .	5
Rates of fare (5 tickets, 25 cents; 25 operative's tickets, \$1)	6 cents.

PROPER ADDRESS OF THE COMPANY:

LACONIA AND LAKE VILLAGE HORSE RAILROAD,

LACONIA, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Albert G. Folsom, *President*; Edmund Little, *Treasurer*; Jotham P. Hutchinson, *Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Albert G. Folsom, Charles A. Busiel, Laconia, N. H.; Samuel C. Clark, Lake Village, N. H.; Jotham P. Hutchinson, Samuel B. Smith, Daniel A. Tilton, Edwin C. Lewis, Laconia, N. H.

ALBERT G. FOLSOM,
C. A. BUSIEL,
S. C. CLARK,
S. B. SMITH,

Directors.

EDMUND LITTLE,

Treasurer.

STATE OF NEW HAMPSHIRE.

BELKNAP, ss. January 22, 1889. Then personally appeared Albert G. Folsom, C. A. Busiel, S. C. Clark, S. B. Smith, and Edmund Little, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

E. C. HATCH, *Justice of the Peace.*

REPORT

OF THE

DOVER HORSE RAILROAD COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1888.

CAPITAL STOCK AND DEBT.	
CAPITAL STOCK.	
Capital stock authorized by charter	
Capital stock authorized by votes of com-pany	\$50,000 30,000
Capital stock paid (par value of shares \$50)	\$19,450.00
Number of stockholders	93
DEBT.	
The company has no debt.	
Amount of cash assets	\$1,397.48
PERMANENT INVESTMENTS.	
RAILWAY.	
Grading and paving	\$13,185.42
Track, including timber, rails, etc., and laying } .	
Interest during construction, commissions, dis- counts, etc.	33.77
Engineering, agencies, salaries, and other expenses during construction	18.25
Total cost of construction	\$13,237.44
EQUIPMENT.	
Horses	\$2,562.00
Cars	3,280.75

Other articles of equipment	\$1,354.24
Total cost of equipment	\$7,196.99
Total amount of permanent investments	20,434.43
Cash assets	1,397.48
Total property and assets of company	\$21,831.91

REVENUE FOR THE YEAR.

Received from passengers on railways operated by company	\$6,095.48
Total earnings	6,095.48
Income from other sources, viz.:	101.00
Advertising	\$26.00
Express	50.00
Other sources	25.00
Total income from all sources	\$6,196.48

EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.

Repairs of road-bed and track	\$100.00
Repairs of cars and other vehicles, harness, and horseshoeing	311.23
Rent of buildings	75.00
Renewal of horses	400.00
Wages and salaries of president, treasurer, superintendent, and their clerks	100.00
Wages and salaries of all other persons employed in operating the road	1,962.00
Provender	1,102.27
Insurance	35.66
Total expenses of operating	\$4,086.16

NET INCOME, DIVIDENDS, ETC.

Net income above operating expenses	\$2,110.32
Interest accrued during the year	5.00
Dividends declared (6 per cent for the year)	1,167.00
Balance for the year, or surplus	1,938.32
Surplus at commencement of year	\$358.18
Deduct old bills	899.00
Deficit at commencement of year as changed by aforesaid entries	540.82
Total surplus December 31, 1888	1,397.48

INVENTORY OF EQUIPMENT.	
Box-cars	2
Open cars	2
Horses	15
Harnesses (pairs of)	7
Omnibuses	2
Sleigh-cars	2
Other articles of equipment:	
Express wagon	1
Snow-plows	2
Largest number of horses owned at any time during the year	15
Smallest number of horses owned at any time during the year	15
Average number of horses owned during the year	15
GENERAL BALANCE-SHEET, DEC. 31, 1888.	
ASSETS.	
Construction	\$13,237.44
Equipment	7,196.99
Cash and cash assets	1,397.48
Total assets	\$21,831.91
LIABILITIES.	
Capital stock	\$19,450.00
Funded debt	984.43
Surplus	1,397.48
Total liabilities	\$21,831.91
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	2.39 miles.
Aggregate length of switches, sidings, etc. . . . .	.14 "
Total length of track, measured as single track	2.53 "
[Weight of rail per yard, 30 lbs.]	
Total length of railway, measured as single track, not including sidings, etc., operated by this company	2.39 "

MILES RUN, ETC.	
Total number of miles run during the year . . .	40,283
Total number of passengers carried in the cars . .	125,033
Total number of round trips for the year . . .	8,850
Number of persons regularly employed by company .	6
Rates of fare	5 cents.

PROPER ADDRESS OF THE COMPANY:

DOVER HORSE RAILROAD,

No. 30 SILVER ST., DOVER, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Mary E. H. G. Dow, *President*, No. 30 Silver St., Dover, N. H.; James Houston, *Superintendent of Stables*, Dover, N. H.; Henry Dow, *Treasurer*, Dover, N. H.; Hon. T. J. Smith, *Clerk of Corporation*, residing now in Washington, D. C., formerly in Dover, N. H., obliged to resign when removing to Washington.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Henry D. Freeman, W. S. Bradley, Cyrus Littlefield, Henry Law, Harrison Haley, Frank B. Williams, Mary E. H. G. Dow, all of Dover, N. H.

MARY E. H. G. DOW,
President.

HENRY DOW,
Treasurer.

JAMES G. HOUSTON,
Superintendent.

STATE OF NEW HAMPSHIRE.

STRAFFORD, ss. December 31, 1888. Then personally appeared Mary E. H. G. Dow, president, Henry Dow, treasurer, and James Houston, superintendent, of the Dover Horse Railroad, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JAMES RYAN, JR., *Justice of the Peace.*

PART IV.

TABULATED STATEMENTS.

EARNINGS AND EXPENSES.

RAILROADS.	Receipts from passenger department.	Receipts from freight department.	Rents for use of roads.	Income from other sources.	Total income.	Expenses and taxes.	Net income.	Rents paid.
Ashuelot			\$20,937.63	\$2,996.80	\$23,934.43	\$2,873.18	\$21,061.25	.....
Atlantic & St. Lawrence	\$73,291.81	\$199,484.04	.....	872.55	273,648.40	272,119.80	1,528.60	.....
Boston & Lowell	437,197.61	612,387.35	765,266.95	155,344.49	1,970,196.40	911,398.45	1,058,797.95	\$298,500.00
Boston, Concord & Montreal.			295,000.00	4,185.12	299,185.12	5,149.06	294,036.06	30,204.00
Pemigewasset Valley			30,204.00	300.00	30,504.00	266.13	30,237.87	.....
Boston & Maine	7,023,949.46	5,700,568.81	11,269.62	375,010.24	13,110,798.13	9,253,543.54	3,857,254.59	2,862,901.84
Dover & Winnepesaukee *.			29,000.00	.....	29,000.00	29,000.00	29,000.00	.....
Eastern in N. H.			22,500.00	113.50	22,613.50	432.63	22,180.87	.....
Manchester & Lawrence			102,000.00	12,382.10	114,382.10	20,370.46	94,011.64	.....
Nashua & Lowell			73,126.00	18,407.29	91,533.29	2,326.45	89,206.84	.....
Peterborough *.			35,699.64	.....	35,699.64	.....	35,699.64	.....
Portsmouth & Dover			46,140.00	.....	46,140.00	.....	46,140.00	.....
Portsmouth, Gt. Falls & Conway ..			45,000.00	27,036.47	72,036.47	.....	72,036.47	.....
West Amesbury Branch			5,700.00	.....	5,700.00	777.36	4,922.64	.....
Wilton *.			16,950.00	.....	16,950.00	.....	16,950.00	.....
Wolfeborough			2,190.00	.....	2,190.00	.....	2,190.00	.....

ASSETS, LIABILITIES, AND DIVIDENDS.

RAILROADS.	Capital stock.	Funded debt.	Unfunded debt.	Total debt.	Cash assets.	Net debt.	Net cash assets.	Interest accrued.	Dividends paid.	Rate.
Ashuelot.....	\$210,000.00	.....	\$550.00	\$550.00	\$14,445.92	.....	\$13,895.92	\$70.03	\$21,000.00	.100
Atlantic & St. Lawrence.....	5,484,000.00	\$2,521,000.00	.....	2,521,000.00	.....	\$2,521,000.00	.....	167,390.40	.....	.....
Boston & Lowell.....	5,529,400.00	6,674,400.00	799,276.14	7,473,676.14	1,500,406.77	5,973,269.37	.....	371,208.95	387,058.00	.070
Boston, Concord & Montreal..	1,800,000.00	3,071,600.00	31,086.39	3,102,686.39	562,908.82	2,539,777.57	.....	218,374.56	38,440.00	.050*
Pemigewasset Valley.....	503,400.00	.....	.....	.....	481.12	.....	481.12	.....	30,204.00	.030
Boston & Maine.....	7,000,000.00	5,673,000.00	4,089,418.76	10,662,418.76	7,304,669.27	3,357,749.49	.....	375,863.41	700,000.00	.100
Dover & Winnepesaukee.....	480,000.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eastern in New Hampshire....	492,500.00	.....	2,473.27	2,473.27	4,807.00	.....	2,333.73	.....	22,162.50	.045
Manchester & Lawrence.....	1,000,000.00	.....	6,499.50	6,499.50	105,137.15	.....	98,637.65	.....	100,000.00	.100
Nashua & Lowell.	800,000.00	300,000.00	38,620.50	338,620.50	348,453.94	.....	9,833.44	17,112.75	72,000.00	.090
Peterborough.....	385,000.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portsmouth & Dover.....	763,000.00	.....	183.00	183.00	3,924.97	.....	3,741.97	.....	46,140.00	.060
Portsm'th, Gt. Falls & Conway	1,150,300.00	1,000,000.00	1,755.00	1,001,755.00	2,626.12	999,128.88	.....	45,000.00	26,955.00	.045†
West Amesbury Branch.....	57,000.00	57,000.00	49.00	57,049.00	346.69	56,702.31	.....	3,990.00	855.00	.015
Wilton.....	240,000.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wolfeborough.....	385,500.00	.....	.....	.....	.....	.....	.....	.....	2,190.00	.000†
Worcester, Nashua & Roel'ter	3,093,800.00	1,457,000.00	313,641.64	1,770,641.64	123,869.94	1,646,171.70	.....	85,169.23	183,834.00	.060
Cheshire.....	2,153,300.00	800,000.00	108,799.26	908,799.26	378,524.62	530,275.24	.....	48,000.00	126,000.00	.060

Monadnock.....	205,400.00	48,000.00	.....	48,000.00	5,811.81	42,188.19	.....	2,356.67	10,000.00 .050
Concord.....	1,500,000.00	.....	367,406.53	367,406.53	285,828.79	81,577.74	.....	.....	150,000.00 .100
Concord & Portsmouth.....	350,000.00	.....	.....	.....	2,269.79	.....	2,269.79	.....	24,500.00 .070
Manchester & North Ware.....	200,000.00	.....	.....	.....	.....	.....	.....	.....	.....
Nashua, Acton & Boston.....	500,000.00	500,000.00	522,482.90	1,022,482.90	6,257.41	1,016,225.49	.....	30,000.00	.....
Suncook Valley.....	341,700.00	.....	.....	.....	2,360.37	.....	2,360.37	.....	.....
Fitchburg.....	20,775,100.00	18,284,000.00	1,488,746.26	19,773,346.26	4,265,324.65	15,508,021.61	.....	739,103.28	14,400.00 .000\$
Mount Washington.....	129,500.00	.....	10,000.00	10,000.00	17,053.57	.....	.....	600.00	261,833.60 .020
Northern.....	3,008,400.00	.....	102,375.26	102,375.26	1,238,650.18	.....	1,136,274.92	.....	7,075.00 .050
Concord & Claremont (N. H.)..	412,400.00	500,000.00	263,877.48	763,877.48	53,083.90	710,793.58	.....	.....	179,838.00 .030
Peterborough & Hillsborough.....	45,000.00	.....	.....	.....	.....	.....	.....	.....	35,000.00
Portland & Rochester.....	591,970.45	.....	.....	.....	27,128.82	.....	27,128.82	.....	.....
Portland & Ogdensburg.....	.....	.....	296,522.84	296,522.84	119,630.22	176,892.62	.....	12,611.08	35,517.83 .060
Profile & Franconia Notch.....	200,000.00	.....	.....	.....	1,670.88	.....	1,670.88	.....	.....
Sullivan County.....	500,000.00	.....	186,626.64	186,626.64	127.56	186,499.08	.....	.....	8,000.00 .040
Whitefield & Jefferson.....	170,000.00	.....	3,149.14	3,149.14	450.30	2,698.84	.....	.....	40,000.00 .080
Upper Coös.....	.....	.....	.....	.....	.....	.....	.....	.....	10,200.00 .060
Totals.....	\$60,528,670.45	\$40,889,600.00	\$9,552,439.51	\$50,449,539.51	\$16,376,299.98	\$35,348,911.71	\$1,305,672.18	\$2,130,002.32	\$3,533,204.90

* On preferred stock. † On 5,990 shares. ‡ On 365 shares. § On \$240,000.

RECEIPTS AND EXPENSES.

The following aggregates and percentages are those of all the roads making returns to this Board :

YEAR.	Gross income.	Increase or decrease.	Per cent.
1883.....	\$14,181,292.01	.....	.....
1884.....	13,932,563.62	— \$248,728.39	1.75
1885.....	17,989,140.10	+ 4,056,576.48	29.12
1886.....	20,281,291.19	+ 2,292,151.09	12.75
1887.....	22,929,551.25	+ 2,648,260.06	13.05
1888.....	24,885,937.99	+ 1,956,386.74	8.53

The increase of the year 1888 over the year 1883 is \$10,704,645.98, or 75.48 per cent.

YEAR.	Expenses, taxes, and rents paid.	Increase or decrease.	Per cent.
1883.....	\$10,965,592.84	.....	.....
1884.....	10,679,057.41	— \$286,535.43	2.60
1885.....	14,225,966.04	+ 3,546,908.63	33.21
1886.....	15,778,383.57	+ 1,552,417.53	10.91
1887.....	18,173,580.59	+ 2,395,197.02	15.18
1888.....	20,530,689.36	+ 2,357,108.77	12.97

The increase of the year 1888 over the year 1883 is \$9,565,096.52, or 87.23 per cent.

YEAR.	Net income.	Increase or decrease.	Per cent.
1883.....	\$3,215,339.17	.....	.....
1884.....	3,253,506.21	+ \$38,167.04	1.19
1885.....	3,763,174.06	+ 509,667.85	15.66
1886.....	4,502,907.62	+ 739,733.56	19.66
1887.....	4,755,970.66	+ 253,063.04	5.62
1888.....	4,355,248.63	— 400,722.03	8.42

The increase of the year 1888 over the year 1883 is \$1,139,909.46, or 35.45 per cent.

YEAR.	Gross income.	Expenses, taxes, and rents paid.	Per cent of expense to gross income.
1883.....	\$14,181,292.01	\$10,965,592.84	77.33
1884.....	13,932,563.62	10,679,057.41	76.65
1885.....	17,989,140.10	14,225,966.04	79.09
1886.....	20,281,291.19	15,778,383.57	77.80
1887.....	22,929,551.25	18,173,580.59	79.26
1888.....	24,885,937.99	20,530,689.36	82.49
Total for 6 years	\$114,199,776.16	\$90,333,629.81	79.12

NUMBER OF STOCKHOLDERS AND AMOUNT OF STOCK
HELD IN NEW HAMPSHIRE FOR THE YEAR ENDING
SEPTEMBER 30, 1888.

RAILROADS.	Total number of stockholders.	Number of stock- holders in New Hampshire.	Amount of stock held in New Hampshire.
Boston, Concord & Montreal.....	1,883	1,109	\$1,286,100.00
Pemigewasset Valley.....	172	123	355,100.00
Boston & Maine	3,884	1,075	1,512,700.00
Eastern in New Hampshire.....	391	201	309,100.00
Manchester & Lawrence.....	582	330	355,800.00
Portsmouth & Dover.....	149	138	753,600.00
Portsmouth, Great Falls & Conway.....	371	52	78,800.00
West Amesbury Branch.....	30	3	15,800.00
Wolfeborough.....	83	64	28,100.00
Worcester, Nashua & Rochester.....	821	189	559,800.00
Cheshire.....	465	39	380,400.00
Monadnock.....	5	3	103,000.00
Concord	1,103	684	1,121,000.00
Concord & Portsmouth.....	226	197	317,900.00
Nashua, Acton & Boston	184	86	402,800.00
Suncook Valley.....	136	132	232,000.00
Fitchburg.....	3,919	266	374,500.00
Mount Washington.....	29	20	79,800.00
Northern.....	2,655	819	822,100.00
Concord & Claremont.....	11	11	412,400.00
Portland & Rochester.....	95	3	1,100.00
Profile & Franconia Notch.....	59	44	155,400.00
Sullivan County.....	9	.....	.....
Whitefield & Jefferson	2	1	85,000.00

STATEMENT OF ACCIDENTS REPORTED IN NEW HAMPSHIRE FOR YEAR ENDING SEPTEMBER 30, 1888.

RAILROADS.	Name of person.	Occupation.	Cause of accident.	Date.	Character of injury.	Place.
Atlantic & St. Lawrence	H. Smith.	Brakeman.	Coupling cars.	Oct. 4, 1887	Not stated.	Gorham.
"	F. Foley.	"	"	Oct. 24, 1887	"	Milan.
"	J. Davidson.	"	"	Nov. 10, 1887	Killed.	Gorham.
"	E. Finnigan.	Foreman.	Struck by hand-car.	Feb. 6, 1888	Not stated.	North Stratford.
"	R. Applebee.	Brakeman.	Coupling cars.	March 16, 1888	"	Groton.
"	William McNeil.	Tramp.	Fell between cars.	May 9, 1888	"	North Stratford.
"	William Smith.	Brakeman.	Fell off engine.	June 14, 1888	"	Groton.
"	J. H. Adams.	"	Coupling cars.	Sept. 22, 1888	"	Gorham.
Boston & Lowell.	W. H. Swain.	Fireman.	Engine derailed.	Oct. 13, 1887	One leg broken.	Wentworth.
"	Abram Kortzen.	Trespasser.	Heal caught between car and lumber on track.	Nov. 26, 1887	Not serious.	Laconia.
"	Scott Wells.	Freight conductor.	Struck by a car.	Dec. 22, 1887	"	West Rumney.
"	E. C. Large.	Brakeman.	Struck by a bridge.	Dec. 24, 1887	Badly bruised.	East Concord.
"	C. E. Pike.	Not stated.	Coupling cars.	Dec. 26, 1887	Hand crushed.	East Tilton.
"	John Goodrich.	"	Fell from freight car.	Jan. 3, 1888	Arm fractured and shouldered out and bruised.	Alder Brook.
"	Everett J. Sanborn.	Freight brakeman.	Falling from top of train or knocked off by bridge.	Feb. 14, 1888	Killed.	Near Wentworth.
"	John Lamontagne.	Trespasser, intoxicated.	Walking on track, struck by train.	Feb. 15, 1888	"	Whitefield.
"	Alice Cleashy.	Coasting.	Struck rear end of express train.	Jan. 3, 1888	Fatally injured.	Near Littleton.
"	E. C. Sherwell.	Engineer.	Collision.	April 21, 1888	Slightly bruised.	Near Ashland Summit.
"	Wilber F. Cowen.	Not stated.	Struck by bridge while climbing down side of car.	April 30, 1888	Fatally injured.	Not stated.
"	Margaret B. Crawford.	Aged 1½ years.	Crawled through fence and struck by shifting engine.	July 2, 1888	Instantly killed.	Tilton.
"	Jesse P. Bradford.	Conductor.	Fell from train.	July 28, 1888	"	Near Wentworth.
Boston & Maine.	William F. Brackett.	Employé.	Coupling cars.	Dec. 2, 1887	Arm badly crushed.	Conway Junction.
"	William E. Card.	Trespasser.	Run over by train.	Dec. 7, 1887	Killed.	Great Falls.
"	Mrs. Melissa Bickford.	"	Struck by train at crossing.	Dec. 8, 1887	Fatally injured.	Manchester.
"	Chas. W. Thompson.	Brakeman.	Fell from top of car under wheels of another car.	Dec. 10, 1887	"	Not stated.
"	Unknown man.	Trespasser.	Attempting to board train.	Dec. 13, 1887	"	North Hampton.
"	Adison S. Roberts.	Brakeman.	Caught between cars.	April 4, 1888	Collar bone broken.	Manchester.
"	Charles S. Jenness.	Employé.	Knocked down by cars.	April 21, 1888	Left leg run over.	Londonderry.
"	W. Douglass.	Trespasser.	Walking on track, struck by engine.	May 5, 1888	Scalp wound and other bruises.	Dover.

Boston & Maine	F. W. Waymouth.	Brakeman	Coupling cars	June 12, 1888	Arm badly jammed	Rochester.
"	Smith Pike	"	Coupling engine to train	June 15, 1888	Lost finger and thumb	Rochester.
"	Charles W. Eastman	"	Drove on track at private crossing	July 18, 1888	Killed.	Near Exeter.
"	J. B. Claggett	"	While driving team struck by train at crossing	Nov. 7, 1887	Somewhat injured	Hollis.
"	Alexander Trumbull	Trespasser	Attempted to board moving freight train	Dec. 7, 1887	Killed.	Nashua.
"	Patrick Doerety	Freight brakeman	Fell from top of car	Dec. 7, 1887	Sprained ankle	Milford.
"	Henry Mason	"	Coupling cars	Dec. 7, 1887	Shoulder hurt by lumber falling	Nashua.
"	Eugene V. Massey	"	Fell from top of freight car	Jan. 8, 1888	Fatally injured	Nashua.
"	George Case	"	Derailment	May 8, 1888	Injured.	Near Marlborough.
"	James G. Hartshorn	Conductor	Coupling cars	May 8, 1888	Slightly injured.	Nashua.
"	Henry Nason	Sectionman	Walking on track, struck by car	Jan. 10, 1888	Killed	Concord.
"	Martin Dooley	"	Walking on track, struck by engine	Jan. 14, 1888	"	Concord.
"	George G. Clough	Freight brakeman	Thrown from top of freight car	Feb. 4, 1888	Somewhat injured.	Near Webster Place.
"	George Preston	"	Probably slipped from top of freight car	Feb. 19, 1888	Killed	Near East Andover.
"	Nelson P. Sargent	Brakeman off d'ty	Attempting to board moving freight train	Aug. 24, 1888	Lost one foot	West Lebanon.
"	George H. Colby	Brakeman	Coupling cars	March 9, 1888	Fingers and thumb badly jammed.	Concord.
Cheshire	Charles S. Smart	Employé	Thrown from snow-plow by snow	March 14, 1888	Killed	Near Hillsborough.
"	Rev. C. H. Wheeler and wife.	"	Crossing track with team, struck by train	June 30, 1888	Killed.	State Line Station.
"	Mike Ready	"	Drunk, lying on pile of ashes with one foot over track	July 12, 1888	One foot cut off.	Fitzwilliam.
"	Samuel Beigcon	Brakeman	Stepped in front of freight train	Aug. 11, 1888	Killed.	Keene.
Concord	C. W. Paige, aged 14	Trespasser	Attempted to board moving freight train	Dec. 14, 1887	"	Manchester.
"	James Stearns	"	Attempted to crawl under coal train	Dec. 12, 1887	"	Portsmouth.
"	Mrs. Sylvester Evans	"	Attempted to drive across track and struck by train	April 23, 1888	"	Epping.
"	W. D. Burnham, ins'tue	"	Jumped from moving train	May 25, 1888	"	Near Concord.
"	Joseph Quinn	Employé	Supposed fall asleep under car, run over	July 23, 1888	"	Manchester.
"	Joseph P. Mansur	Employé	Coupling cars	July 31, 1888	Fatally injured.	Concord.
"	Chester M. Sprague	Car coupler	Supposed fell from shifting engine, run over	Aug. 13, 1888	Killed.	Concord.
"	G. Rene (supposed)	"	Supposed jumped from freight train	Sept. 18, 1888	"	Manchester.
Northern	Andrew Kenniston	Yard brakeman	Foot caught between draw-bar of two cars	Nov. 1, 1887	Lost one foot	Concord.
"	F. O. Brown	Freight conductor	Coupling cars	Nov. 24, 1887	Two fingers jammed	West Lebanon.
"	Henry F. Bailey	Freight brakeman	Supposed fell between cars, run over	Dec. 1, 1887	Killed	West Lebanon.

MILEAGE AND COST OF

RAILROADS.	Main line of road.	Same in New Hampshire.	Double track.	Same in New Hampshire.	Branches owned.	Same in New Hampshire.	Double track on branches.
Ashuelot.....	24.00	23.21	.....	.....	.....	.....	.....
Atlantic & St. Lawrence.....	149.58	52.06	.....	.....	.....	.....	.....
Boston & Lowell	26.75	.....	26.75	.....	71.34	.....	15.45
Boston, Concord & Montreal. 145.88	145.88	.....	.....	.....	20.39	20.39	.....
Pemigewasset Valley.....	20.06	20.06	.....	.....	.....	.....	.....
Boston & Maine.....	115.50	34.75	70.96	14.89	8.50	2.75	1.00
Dover & Winnepesaukee.....	29.00	29.00	.....	.....	.....	.....	.....
Eastern in New Hampshire...	16.08	16.08	5.94	5.94	.....	.....	.....
Manchester & Keene.....	29.59	29.59	.....	.....	.....	.....	.....
Manchester & Lawrence.....	22.39	22.39	.....	.....	.....	.....	.....
Nashua & Lowell.....	14.50	5.25	14.50	5.25	.....	.....	.....
Peterborough.....	10.50	10.50	.....	.....	.....	.....	.....
Portsmouth & Dover.....	10.88	10.88	.....	.....	.....	.....	.....
Portsm'th, Gt. Falls & Conway	72.86	69.94	.....	.....	.....	.....	.....
West Amesbury Branch	4.45	2.32	.....	.....	.....	.....	.....
Wilton.....	15.50	15.50	.....	.....	.....	.....	.....
Wolfeborough.....	12.03	12.03	.....	.....	.....	.....	.....
Worcester, Nash. & Rochester	94.48	55.02	18.13	.....	.....	.....	.....
Cheshire.....	53.62	42.81	.....	.....	.....	.....	.....
Monadnock.....	15.80	13.76	.....	.....	.....	.....	.....
Concord.....	34.53	34.53	34.53	34.53	2.50	2.50	.....
Concord & Portsmouth.....	40.50	40.50	.....	.....	7.00	7.00	.....
Manchester & North Weare. .	19.00	19.00	.....	.....	.....	.....	.....
Nashua, Acton & Boston.....	20.83	4.57	.....	.....	.....	.....	.....
Suncook Valley.....	19.54	19.54	.....	.....	.....	.....	.....
Fitchburg.....	189.96	.....	100.56	.....	100.09	9.47	.....
Mount Washington.....	3.33	3.33	.....	.....	.....	.....	.....
Northern.....	69.50	69.50	.....	.....	13.41	13.41	.....
Concord & Claremont (N. H.).	56.00	56.00	.....	.....	14.90	14.90	.....
Peterborough & Hillsborough	18.51	18.51	.....	.....	.....	.....	.....
Portland & Rochester.	52.50	3.50	.....	.....	.....	.....	.....
Portland & Ogdensburg.....	91.35	40.54	.....	.....	.....	.....	.....
Profile & Franconia Notch....	13.33	13.33	.....	.....	.....	.....	.....
Sullivan County.....	26.00	25.81	8.68	8.68	.....	.....	.....
Whitefield & Jefferson.....	13.00	13.00	.....	.....	5.00	5.00	.....
Upper Coos.....	21.17	21.17	.....	.....	.....	.....	.....
Kilkenny.....	10.00	10.00	.....	.....	.....	.....	.....
Bartlett & Albany.....	12.00	12.00	.....	.....	.....	.....	.....

* As reported and from other sources. The reports from roads

ROADS AND EQUIPMENT. *

Sidings and other trucks.	Same in New Hampshire.	Total length computed as single track.	Same in New Hampshire.	Other roads operated.	Same in New Hampshire.	Total road operated.	Same in New Hampshire.	Cost of road and equipment.
4.97	4.66	28.97	27.88	.....	.....	24.00	23.21	\$238,756.25
33.31	9.70	182.89	61.76	.....	.....	149.58	52.06	2,873,031.00
63.92	.....	204.21	.....	187.26	187.26	187.26	187.26	7,634,738.80
.37	.37	20.43	20.43	.....	.....	.....	.....	4,926,850.87
101.47	20.96	297.43	73.24	1,084.79	450.75	1,208.79	485.50	502,999.75
2.00	2.00	31.00	31.00	.....	.....	.....	.....	10,929,117.63
10.81	10.81	32.83	32.83	.....	.....	.....	.....	480,000.00
3.00	3.00	32.58	32.59	.....	.....	.....	.....	780,535.36
3.38	2.52	25.77	24.91	.....	.....	.....	.....	182,436.00
6.08	1.95	35.08	12.45	.....	.....	.....	.....	1,000,000.00
1.00	1.00	11.50	11.50	.....	.....	.....	.....	909,535.02
1.85	1.85	12.73	12.73	.....	.....	.....	.....	588,950.00
11.18	9.54	84.04	79.48	.....	.....	.....	.....	768,400.00
.49	.38	4.94	2.70	.....	.....	.....	.....	2,150,300.00
2.24	2.24	17.74	17.74	.....	.....	.....	.....	114,000.00
.80	.80	12.83	12.83	.....	.....	.....	.....	242,600.00
29.47	13.00	142.08	68.02	.....	.....	.....	.....	385,500.00
17.29	14.12	70.91	56.93	26.21	13.75	64.01	42.81	4,553,921.02
.70	.70	16.50	14.46	.....	.....	.....	.....	2,742,130.22
38.97	38.97	110.53	110.53	104.70	188.44	141.73	125.47	370,791.26
8.68	8.68	56.18	56.18	.....	.....	.....	.....	1,500,000.00
1.50	1.50	20.50	20.50	.....	.....	.....	.....	350,000.00
3.27	1.59	24.10	6.16	.....	.....	.....	.....	200,000.00
2.38	2.38	19.75	19.75	.....	.....	.....	.....	1,057,031.20
180.56	.....	580.85	9.47	70.03	.....	369.98	9.47	348,199.19
.....	.....	3.33	3.33	.....	.....	3.33	3.33	35,945,678.21
16.54	16.54	99.45	99.45	.....	.....	.....	.....	139,500.00
7.87	7.87	78.77	78.77	.....	.....	.....	.....	3,068,400.00
1.44	1.44	19.95	19.95	.....	.....	.....	.....	1,131,206.38
13.06	1.50	65.56	5.00	.....	.....	52.50	3.50	209,298.44
.....	.....	.....	.....	.....	.....	91.35	40.54	591,970.45
.....
4.87	4.87	39.55	39.36	.....	.....	26.00	25.81	216,017.02
3.00	3.00	21.00	21.00	.....	.....	18.00	18.00	725,820.91
.....	.....	21.17	21.17	.....	.....	21.17	21.17	189,504.39
.....	.....	10.00	10.00	.....	.....	10.00	10.00	.....
.....	.....	12.00	12.00	.....	.....	12.00	12.00	.....

operating and from roads owning do not in all cases agree.

RAILROAD TAXES — 1888.

CORPORATIONS.	Tax assessed.	To towns.	To State.
Ashuelot.....	\$2,122.68	\$1,055.83	\$1,066.85
Atlantic & St. Lawrence.....	7,730.72	1,932.68	5,798.04
Boston, Concord & Montreal.....	34,224.58	24,553.55	9,671.03
Boston & Maine.....	24,947.15	9,786.47	15,160.68
Cheshire.....	18,639.76	6,709.39	11,930.37
Concord	33,598.08	27,242.40	6,355.68
Concord & Claremont.....	7,691.20	2,069.80	5,621.40
Concord & Portsmouth.....	7,752.00	7,050.80	701.20
Dover & Winnepesaukee.....	4,761.40	4,149.61	611.79
Eastern.....	4,863.16	3,255.97	1,607.19
Fitchburg.....	452.20	113.05	339.15
Manchester & Lawrence.....	19,332.27	12,973.38	6,358.89
Manchester & North Weare....	1,033.60	258.40	775.20
Monadnock.....	1,279.84	778.68	501.16
Mount Washington.....	1,938.00	411.04	1,526.96
Nashua, Acton & Boston.	258.40	64.60	193.80
Nashua & Lowell.....	4,754.56	2,186.56	2,568.00
Northern.....	25,669.76	11,272.85	14,396.91
Peterborough.....	586.72	406.83	179.89
Portland & Ogdensburg.....	3,230.00	807.50	2,422.50
Portland & Rochester.....	387.60	97.40	290.20
Portsmouth & Dover.....	1,292.00	1,282.53	9.47
Portsmouth, Great Falls & Conway	6,431.12	2,247.98	4,183.14
Sullivan	6,460.00	1,615.00	4,845.00
Suncook Valley.....	1,755.60	1,707.57	48.03
West Amesbury Branch.....	323.00	144.17	178.83
Wilton.....	3,212.52	2,980.41	232.11
Wolfeborough	585.20	173.03	412.17
Worcester, Nashua & Rochester....	15,263.84	5,896.10	9,367.74
Totals.....	\$240,576.96	\$133,223.58	\$107,353.38

STREET RAILWAYS.

The following tables give the earnings, expenses, and number of passengers carried by the various street railways in the State, and show the rapid and steady increase of their business during the last five years.

CONCORD HORSE RAILROAD.

	Miles.	Gross earnings.	Expenses.	Net earnings.	Passengers carried.
Year to Dec. 31, 1884.....	7.00	\$14,671.29	\$11,556.15	\$3,115.14	203,731
“ “ 1885.....	7.00	16,035.59	13,309.79	2,725.80	210,963
“ “ 1886.....	7.00	18,506.38	17,057.34	1,449.04	236,212
“ “ 1887.....	7.00	19,578.30	15,651.59	3,926.71	251,490
“ “ 1888	7.00	20,430.85	17,221.87	3,208.98	260,000
Total, 5 years.....		\$89,222.41	\$74,796.74	\$14,425.67	1,162,396

MANCHESTER HORSE RAILROAD.

	Miles.	Gross earnings.	Expenses.	Net earnings.	Passengers carried.
Year to Sept. 30, 1885.....	4.25	\$20,585.91	\$19,575.99	\$1,009.92	440,693
“ “ 1886.....	5.50	29,918.60	29,100.48	818.12	602,910
“ “ 1887.....	9.00	58,621.58	57,528.77	1,092.81	718,202
“ “ 1888.....	9.00	43,576.87	42,318.07	1,258.80	838,854
Total, 4 years.....		\$152,702.96	\$148,523.31	\$4,179.65	2,600,659

NASHUA STREET RAILWAY.

	Miles.	Gross earnings.	Expenses.	Net earnings.	Passengers carried.
138 days to Sept. 30, 1886...	2.00	\$6,143.28	\$3,261.10	\$2,882.18	122,283
Year to Sept. 30, 1887.....	2.00	12,108.19	9,671.68	2,436.51	235,772
“ “ 1888.....	4.00	16,178.28	12,361.97	3,816.31	302,593
Total, 2 years, 138 days		\$34,429.75	\$25,294.75	\$9,135.00	660,648

LACONIA AND LAKE VILLAGE HORSE RAILROAD.

	Miles.	Gross earnings.	Expenses.	Net earnings.	Passengers carried.
Year to Sept. 30, 1884.....	2.14	\$7,652.47	\$6,035.85	\$1,616.62	160,108
Three mos. to Dec. 31, 1884.	2.14	1,816.88	1,476.95	339.93	37,545
Year to Dec. 31, 1885.....	2.14	7,458.64	5,783.37	1,675.27	148,133
“ “ 1886.....	2.14	8,511.91	6,924.04	1,587.87	158,766
“ “ 1887.....	2.14	8,932.85	6,796.69	2,136.16	166,099
“ “ 1888.....	2.14	8,980.80	7,260.91	1,719.89	164,424
Total, 5 years, 3 months.		\$43,353.55	\$34,277.81	\$9,075.74	835,075

DOVER HORSE RAILROAD.

	Miles.	Gross earnings.	Expenses.	Net earnings.	Passengers carried.
Year to March 31, 1885.....	2.39	\$4,865.85	\$4,535.73	\$330.12	90,864
Nine mos. to Dec. 31, 1885..	2.39	3,721.10	3,539.13	181.97	81,811
Year to Dec. 31, 1886.....	2.39	5,513.24	4,882.82	630.42	108,000
“ “ 1887.....	2.39	5,421.50	4,891.45	530.05	107,000
“ “ 1888.....	2.39	6,196.48	4,086.16	2,110.32	125,033
Total, 4 years, 9 mos...		\$25,718.17	\$21,935.29	\$3,782.88	512,708

APPENDIX.

1a

RAILROAD LAWS OF NEW HAMPSHIRE.

FROM THE GENERAL LAWS.

CHAPTER 158.

RAILROAD CORPORATIONS.

SECTION

1. Powers of railroad corporations.
2. Bound by all laws.
3. May purchase real estate, when.
4. Bonds sold at a discount not affected by usury.
5. To keep accounts of receipts and expenditures.
6. Assistant treasurers of railroads, when appointed; dividends and attachments.
7. When such treasurers not appointed.

SECTION

8. Railroads prohibited from increasing their capital.
9. Issuing certificates of stock prohibited, when.
10. Penalty for violation.
11. Rival and competing roads to be run separately.
12. Rival roads and their officers not to control competing roads.
13. Provision applies to rival roads only.

SECTION 1. Corporations established by law for the construction and maintenance of railroads have the general powers given by law to other corporations, and those granted by their charters so far as they have not been subsequently changed by law.

SECT. 2. Such corporations are bound by all the laws of the State affecting the proprietors of railroads.

SECT. 3. Any railroad corporation may purchase, hold, and convey real estate lying near to or adjoining their road, not exceeding in value five per cent of its capital stock.

SECT. 4. No railroad corporation shall be exonerated from the payment of any bond or obligation issued by the directors in pursuance of authority given at any legal meeting, by reason of any

discount made to the purchaser thereof in accordance with the unanimous vote of the corporation.

SECT. 5. Every railroad corporation shall keep exact accounts of its receipts and expenditures ; and in every year when its net receipts exceed the average of ten per cent on its expenditures from the commencement of its operations, the excess shall be paid into the treasury of the State, until otherwise directed by the Legislature.

SECT. 6. Every railroad corporation not having its treasurer resident in this State, and keeping his office therein, shall appoint an assistant treasurer, who shall reside in this State, and keep his office at the principal place of business of such corporation therein. All dividends due to stockholders resident in this State, of any railroad wholly or partially in this State, shall be payable at the office of the treasurer or assistant treasurer in this State, unless otherwise requested by them ; and attachments of stock shall be made by leaving copies at the same office, and transfers shall be there filed ; and such attachments and transfers shall have priority according to priority of filing in the office of either of said officers.

SECT. 7. The provisions of the preceding section shall not apply to any railroad corporation existing in any other State, but owning and operating a portion of its road in this State, unless that portion of its road in this State is represented by capital stock made and issued under the authority of this State.

SECT. 8. No railroad corporation shall increase the amount of its capital stock without the consent of the Legislature first had and obtained, and any officer thereof who shall aid and abet therein shall be punished by a fine not exceeding twenty thousand dollars, and by imprisonment not exceeding two years.

SECT. 9. No certificate of shares in the capital stock of any railroad corporation shall be issued after the number of shares specifically limited in and by the charter of such railroad shall have been issued at the par value thereof limited in said charter, unless such issue beyond the number so limited shall have been authorized by enactment of the Legislature subsequent to the charter, and previous to such issue ; and all provisions contained in railroad charters authorizing an increase of the capital stock of said railroads, respectively, beyond the number of shares specifically limited therein, shall be void and of no effect as to any increase of capital hereafter made.

SECT. 10. If any president, treasurer, or other officer of a railroad corporation shall issue a certificate of any share or shares in the capital stock of said corporation contrary to the provisions of the preceding section of this act, he shall be imprisoned not exceeding one year and fined not exceeding five hundred dollars, or be imprisoned not exceeding three years ; and any such certificate, so issued by the president, treasurer, or other officer of said corporation, shall be void.

SECT. 11. Two or more railroad corporations, chartered by the Legislature of this State, constituting the whole or part of different lines of route for public travel and transportation between any two cities or towns, or between any city and town, either within or without this State, forming rival and competing lines of route between such points, shall not be allowed to consolidate such roads or lines ; and neither of said lines, or any road or roads composing the same, shall be run or operated by any such rival and competing line, or any road or roads, portion thereof, under any business contract, lease, or other arrangement, but each and every railroad corporation so situated shall be run, managed, and operated separately by its own officers and agents, and be dependent for its support on its own earnings from its local and through business in connection with other roads, and the facilities and accommodations it shall afford the public for travel and transportation under fair and open competition, unless such lease, contract, or arrangement be first authorized by the Legislature and approved by the Governor and Council.

SECT. 12. In all cases where any road, its directors, officers, or agents, shall hereafter enforce, or attempt to enforce, or exercise any authority over any other road, situated as is provided in the preceding section, or do any act in conflict with said section, such officers or agents shall severally be subject to a fine or liability not exceeding five hundred dollars for each offence, to be recovered by action or debt, or by information or indictment, for the use of the county within which said suit shall be instituted. And it shall be further lawful for any citizen to apply to the supreme court, or to any one or more of the justices thereof, not interested in said road or roads, whose duty it shall be to issue an injunction to restrain, under heavy liabilities and penalties, any board of directors, its officers or agents, or either of them, from attempting to interfere with

or control in any way or manner the operation, management, or direction of such road or roads, or violate any of the provisions of said section; and said directors, officers, and agents shall be liable on such application to examination, under oath, touching any infringement of the provisions of said section, and be subject to all expense of every kind whatsoever necessarily incurred in enforcing the same.

SECT. 13. The two preceding sections shall apply solely to the operation and control of any roads by rival lines, or parts thereof, and not to contracts or leases for the running and operation of any road constructed as an extension or continuation of a separate and independent line, or as parts and parcels of the same, or to any side branches tributary or secondary to such line, all which are specially exempted from the provisions of said section.

CHAPTER 159.

PROPRIETORS OF RAILROADS.

SECTION

1. Proprietors of railroads, who are.
2. Sale of railroad, lease, etc., when valid.
3. Proprietors to conform to laws.
4. To transport soldiers, etc., for State.
5. To transport soldiers, etc., for United States.

SECTION

6. To keep full records and accounts.
7. To make annual reports; form of.
8. To report exclusive contracts.
9. Tolls may be altered by Legislature.
10. Penalty for offences by proprietors.
11. For offences by agents.

SECTION 1. The term proprietors of a railroad shall include the corporation to which any railroad was originally granted, or into whose hands it has subsequently passed, the assignees or trustees to whom any railroad has been mortgaged for the security of debts, and any company or persons to whom it may have been conveyed.

SECT. 2. No sale, lease, mortgage, or contract for the use of any railroad shall be valid unless it shall be in writing, filed in the office of the secretary of state, and authorized by the Legislature.

SECT. 3. The proprietors of every railroad shall in all things conform to the requirements of the laws, shall not discontinue their

road, nor any part of it, shall keep it all in good repair, and discharge their duties in carrying passengers and freight agreeably to the proper object and purpose of such railroad.

SECT. 4. Such proprietors shall, in time of war, insurrection, or invasion, transport soldiers, munitions of war, and other property of the State over such roads, when required by its officers and agents, at such rates as the Governor and Council shall impose, if the parties do not agree.

SECT. 5. They shall transport soldiers, munitions of war, and other property of the United States, and the mails of the United States, when required by the proper officers and agents, at such rates as the Governor and Council shall impose, if the parties do not agree, and the United States shall submit the matter to their decision.

SECT. 6. All proprietors of railroads shall keep a full record of all their doings, and exact accounts of all their receipts and expenditures, and, when required, submit all their accounts, records, papers, and files to the inspection of the Legislature, its committees, and the railroad commissioners.

SECT. 7. The proprietors of every railroad shall, in the month of May, annually, make report to the Governor and Council, under oath of their treasurer and superintendent, or of the persons who shall discharge the duties of those officers, of their acts and doings, receipts and expenditures; and such report shall contain full information upon the several items here enumerated, namely:

REPORT OF THE RAILROAD UNDER CHAPTER 159 OF THE GENERAL LAWS.

CAPITAL STOCK AND DEBTS.

Capital stock,
Capital paid in,
Funded debt,
Floating debt,
Total present amount of funded and floating debt,
Amount of debts secured by mortgage of road and franchise, or any property of the corporation,
Number of mortgages on road and franchise, or any property of the corporation,
Average rate of interest per annum during the year,

COST OF ROAD AND EQUIPMENT.

For grading and masonry,
For wooden bridges,
For superstructure, including iron,
For stations, buildings, and fixtures,
For land, land damages, and fences,
For locomotives,
For passenger and baggage cars,
For merchandise cars,
For agencies, engineering, and miscellaneous expenses,
Total cost of road and equipment,
Assets held by the corporation in addition to the cost of the road,

CHARACTERISTICS OF THE ROAD.

Length of road,
Length of single main track,
Length of double main track,
Aggregate length of sidings and other tracks, excepting main tracks,
Weight of rail per yard,
Maximum grade, with its length,
Average grade per mile of road,
Shortest radius of curvature, with length of same,
Total degree of curvature,
Total length of straight line,
Aggregate length of wooden truss bridges under track,
Aggregate length of all other wooden bridges under track,
Aggregate length of iron bridges under track,
Aggregate length of stone bridges under track,
Whole length of road unfenced,
Number of way stations,
Number of railroads crossed at grade,
Number of public ways crossed at grade,

DOINGS FOR THE YEAR.

Miles run by passenger trains,
Miles run by freight trains,
Miles run by other trains,
Total miles run,
Number of passengers carried in the cars,

Number of passengers carried one mile,
 Number of tons of merchandise carried in the cars,
 Number of tons of merchandise carried one mile,
 Rate of speed adopted for passenger trains,
 Rate of speed adopted for freight trains,
 Estimated weight in tons of passenger cars, not including passengers, hauled one mile.
 Estimated weight in tons of merchandise cars, not including freight, hauled one mile,

EXPENDITURES FOR WORKING THE ROAD.

For repairs of roads, exclusive of renewals of iron,
 For renewals of iron, including laying down,
 For repairing gates, fences, and houses,
 For taxes and insurance,
 For removing ice and snow,
 For fuel, stating number of cords of wood and tons of coal used,
 For oil,
 For waste and other material for cleaning,
 For repairs of locomotives,
 For new locomotives to cover depreciation,
 For repairs of passenger cars,
 For new passenger cars to cover depreciation,
 For repairs of merchandise cars,
 For new merchandise cars to cover depreciation,
 For wages of freightmen,
 For wages of stationmen,
 For wages of switchmen and gatemen,
 For wages of conductors and brakemen,
 For wages of enginemen and firemen,
 For wages of watchmen,
 For salaries of president, treasurer, superintendent, and corporation clerk,
 For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, and the amount to each,
 For amount paid other companies as rent for use of their roads, specifying each company, and the amount to each,
 For all other expenses not included in the foregoing items,
 Total expenditures for working the road,

INCOME FOR THE YEAR.

From passengers,
 From freight,
 From mails,
 From expresses,
 Interest,
 From all other sources,
 Total income,
 Net earnings after deducting expenses,

DIVIDENDS.

Per cent total on stock,
 Per cent interest on debt (if any),
 Surplus not divided, ,
 Surplus last year,
 Total surplus,

MISCELLANEOUS.

Number of persons employed on road,
 Number of legal counsel retained, and amount paid them,
 Number of actions in court each year in which the corporation is a party, the expense of each action, the nature of the controversy, and the amount in question, .
 Number of free passengers carried during the year, not including persons engaged in the immediate working of the road, or stockholders attending meetings of the corporation,
 Number of engines owned or used by the company,
 Number of passenger cars,
 Number of merchandise cars,
 Number of gravel cars,

SECT. 8. In said annual report they shall state whether said proprietors have granted or secured, by contract or otherwise, any exclusive privileges to any person to use the land or right of way of said railroad for any purpose, and what; and all contracts, grants, and exclusive privileges shall be void unless approved by the Legislature.

SECT. 9. When the net income of any railroad shall exceed ten per cent upon its stock, the Legislature may alter and revise the rates of toll for freight and passengers as they may deem just.

SECT. 10. If the proprietors of any railroad shall violate the provisions of any statute, and no mode of punishment is provided therefor, they may be fined not exceeding one thousand dollars for each offence, and shall be liable to any person injured, in an action upon the case, for any damage by him sustained.

SECT. 11. If any proprietor, officer, agent, or servant of the proprietors of any railroad shall knowingly violate the provisions of any statute, where no other remedy is provided, he may be fined for each such offence not exceeding one hundred dollars.

CHAPTER 160.

LAYING OUT RAILROADS.

SECTION

1. Railroads are public.
2. Railroad corporations are public.
3. Railroads built only by grant of the Legislature.
4. Routes to be surveyed and roads laid out by proprietors; may be laid out in parts, etc.
5. Grantees may make surveys.
6. Location by permanent monuments.
7. Land taken, how described.
8. Railroad commissioners locate, when.
9. Grantees may take deeds or bonds.
10. May apply for appraisal of damages.
11. Owner of land may apply for change of location.
12. Notice to landholders to be given.
13. Notice to proprietors of railroad.
14. Selectmen to be notified and join in the appraisal.
15. Notice of commencement and distance sufficient.
16. Appraisal, how made and reported.
17. Either party may appeal; proceedings thereon.

SECTION

18. Location changed on petition of the proprietors.
19. Rights of parties; new location a discontinuance of the old.
20. Damages to be paid before entry.
21. Damages, how paid if owner unknown.
22. Security for damages and costs, when.
23. No action before entry, nor after location changed.
24. Branch railroads by permission of the selectmen.
25. No title by adverse possession by or against railroads.
26. Return of damages to town clerk, when appeal entered.
27. Land may be appraised and set off after road built.
28. When commissioners and selectmen cannot agree, damages, how assessed.
29. May take land for side tracks, depot, shops, etc., same as for track.
30. May take earth and gravel, etc.

SECTION 1. Railroads, being designed for the public accommodation, like other highways are public, and at all times subject to the control of the Legislature.

SECT. 2. All railroad corporations are public, and trustees and others in whom any railroad is vested are public agents, so far as the security and protection of the public rights and interests are concerned.

SECT. 3. Railroads, being public highways, can be laid out, built, maintained, and put in operation only by virtue of express grants of the Legislature, or of authority derived from them.

SECT. 4. The funds for the construction of railroads being derived mainly from the proprietors, and the profits derived from the tolls and income thereof being payable to them, their routes shall be surveyed and the roads laid out, in the first instance, by their agents. Any railroad may be laid out at one time through its entire course, or at different and successive times in such parts as shall be deemed conducive to the interests of all concerned.

SECT. 5. A railroad being authorized by grant of the Legislature, the grantees, by their agents and engineers, may enter upon any land which falls within their route, and make such surveys as they deem necessary.

SECT. 6. They shall locate the route for their railroad where they deem it most suitable, establishing at convenient distances, not exceeding one mile apart, permanent monuments easily ascertained ; and make a return of their location with reference to said monuments to the office of the secretary of state.

SECT. 7. Such return shall describe the location of their road by course and distance, with reference to such monuments, the width of the land located, the quantity of land of each owner proposed to be taken, and the name of the owner, if known.

SECT. 8. If stockholders of the railroad corporation, holding one tenth of the capital stock thereof, are dissatisfied with the location, they may apply by petition to the railroad commissioners for a change of the same ; and they shall give notice to the corporation and all others interested by publication, and after due hearing and examination, shall make such changes in the location as they deem the public interest to require.

SECT. 9. The grantees of such railroad, either before or after such location, may obtain deeds, or bonds for deeds, of any lands which they deem necessary for their road, or of the right of way over the same.

SECT. 10. If from any cause they cannot or do not obtain such deeds, they may apply by petition to the railroad commissioners to appraise the damages to the owners of such lands occasioned by such railroad.

SECT. 11. Any owner of land over which such railroad is located, who is aggrieved by such location, may, at any time before his damages are assessed, present his petition to the railroad commissioners, praying for a change of the location of such railroad.

SECT. 12. The railroad commissioners shall give such notice of a hearing, upon any application by the proprietors of the railroad for an assessment of damages, to the several owners and parties interested in the land over which said railroad is located, as county commissioners are required to give of hearings upon petitions for highways referred to them.

SECT. 13. They shall give like notice of a hearing, upon the application of a land-owner for a change of location, to the railroad proprietors and others interested. No appraisal of damages shall be made after such petition is filed till the question of change of location is decided.

SECT. 14. The railroad commissioners shall give notice of any hearing for the appraisal of damages to the selectmen of the town in which the land lies; and the railroad commissioners and said selectmen being met, shall constitute a joint board for such appraisal.

SECT. 15. Notice of the time and place of the commencement of any such hearing, and of the distance to be examined, shall in all cases be sufficient.

SECT. 16. Said commissioners shall examine the place, hear the parties, and make report of their proceedings, in the same manner as county commissioners are required to do in the case of highways.

SECT. 17. Such report shall be final, unless either party aggrieved shall appeal therefrom within thirty days after notice thereof, upon which appeal the same proceedings shall be had as on appeal from an award of damages by the county commissioners.

SECT. 18. The location of any railroad may be changed, on petition of the proprietors, by the railroad commissioners, after notice to all persons interested, as well upon the existing as the proposed location, a hearing, and an award of damages to persons injured by such change.

SECT. 19. The right of all parties shall be the same in such case as on the original appraisal, and the change of location shall be a discontinuance of the part so changed ; but the proprietors may be allowed by the commissioners a limited time to remove their fixtures therefrom.

SECT. 20. Damages awarded to any land-owner shall be paid or tendered him, if known and resident in the State, before the proprietors shall enter on his land to make their road, except by his consent.

SECT. 21. If the owner or his residence is unknown, or if he is a minor and has no guardian, or is not resident in the State, the damages awarded shall be paid to the state treasurer for his use before the land can be rightfully entered upon.

SECT. 22. If an appeal is taken from the award of damages, the proprietors may enter upon and use the land, upon payment of the damages awarded to the owner, or, on his refusal of the same, to the state treasurer, and filing in his office reasonable security to the satisfaction of either of the county commissioners for the payment of any further damages and cost which may be awarded to the land-owner upon said appeal.

SECT. 23. No action shall be brought for damages before entry upon the land ; and if the location of the road shall be changed before the land is entered upon for the purpose of building the road, no damages shall be paid.

SECT. 24. Branch railroads, for the purpose of obtaining gravel, timber, or other material for the railroad, or for the accommodation of individuals, may be constructed and maintained across any highway by the permission of the selectmen, if the same does not obstruct the public travel.

SECT. 25. No title to any real estate or interest therein shall be acquired by or against the proprietors of any railroad by any adverse possession, however exclusive or long continued.

SECT. 26. The railroad commissioners shall certify the damages awarded to land-owners in each town by them, separately or in connection with the selectmen, to the town clerk of such town, within ten days after the making thereof ; and the clerk shall note thereon the date of its receipt, and keep it on file, and any appeal may be entered at the court holden next after the expiration of thirty days therefrom.

SECT. 27. If land occupied by a railroad was not laid out and the damages appraised at the time of its construction, the road shall not be obstructed, but the land may be set off and the damages appraised as should have been done originally ; and the cost of the proceedings shall be assessed by the railroad commissioners, and paid by the proprietors of the railroad.

SECT. 28. Whenever upon a hearing before the railroad commissioners and the selectmen of any town, upon an application for the assessment of damages for land taken in such town, commissioners and selectmen, as a joint board, are or have been unable to agree upon the amount of damages to be awarded to the owner of any land in such town, included in the location of such railroad, and shall have made report of their proceedings as required by law, the supreme court for the county, or any disinterested justice of said court in vacation, on the application in writing of such railroad or land-owner, shall appoint three disinterested men, resident of the county, who shall, after due notice to and hearing of the parties, appraise the damage to such land-owner for the land taken for such railroad in the same manner and with the same proceedings as are now provided by law for such assessment.

SECT. 29. Any railroad corporation may take and hold such land as may be necessary for side tracks, woodsheds, repair-shops, engine, car, and freight houses, turn-tables, and depot purposes, and shall file a location of the same, as now provided by law for the location of railroads ; and the damages for the same, in case the parties do not agree, may be assessed in the same manner as now provided by law for land taken for such railroads ; *provided*, that a copy of the location so made shall be given to the owner if known and resident in this State, and if such owner is unknown or resides without the State, that a like copy shall be published in some newspaper published in the county where the land so located is situated, at least twelve days before application shall be made to assess the damages for such land ; and if any such owner is dissatisfied with such location, either party may apply to the railroad commissioners, who, after due notice to all parties interested, may change such location as justice may require, and shall file the location by them made in the office of the secretary of state.

SECT. 30. Any railroad corporation may, in like manner, take and hold earth and gravel contiguous to the line of said railroad,

necessary for repairing, securing, or ballasting its road ; *provided*, that in their certificate of location thereof they shall specify the depth to which they propose to grade the same ; and in case they are unable to agree with the owner in relation thereto, the railroad commissioners shall state in their certificate of location the depth to which such material may be removed.

CHAPTER 161.

CROSSINGS, STATIONS, AND PASSES.

SECTION	SECTION
1. Proprietors to provide crossings, etc.	11. Appeal from assessment of damages.
2. Passes for highways, when to be built.	12. Judgment on report and execution.
3. Towns may require bridges, etc.	13. On non-compliance, fine and injunction.
4. Penalty for neglect.	14. Depots established on like proceedings.
5. Proprietors may apply to supreme court for decision.	15. Penalty for neglect.
6. County commissioners to hear and report.	16. County commissioners to hear and decide on passes.
7. Court to make order.	17. Penalty for not making passes.
8. Proprietors may petition court for leave to construct bridge, etc.	18. Proprietors liable for incidental damages.
9. County commissioners may set off land.	19. County commissioners to hear and award damages.
10. Damages assessed to owners injured.	20. On compliance, liability of railroad ceases.

SECTION 1. Railroads having for their principal object the public accommodation, the proprietors thereof shall be bound to provide crossings, stations, and other facilities for the public, and to make gates, crossings, cattle-passes, and other facilities for owners of land divided thereby or separated from any highway.

SECT. 2. If the track of any railroad is nine feet or more above any highway crossed by it as it was used when the railway was located, the proprietors thereof, within four months after notice by the selectmen, shall construct and afterward maintain a suitable pass for said highway under their track, at least ten feet in height above the traveled path and below the lower part of the timbers supporting the railway, and on failure so to do shall forfeit one hundred dollars for each month's neglect, for the use of the town.

SECT. 3. Any town, in any other case, may, by vote, require the proprietors of any railroad to secure the crossing of any highway by said railroad, by a bridge, or a pass under said way, or by gates on both sides of said railroad.

SECT. 4. If the proprietors of said railroad shall not construct such bridge, pass, or gates to the satisfaction of the selectmen, within six months after notice of said vote, they shall forfeit one hundred dollars for each month's neglect, unless they shall make application to the supreme court for a decision as hereinafter provided.

SECT. 5. The proprietors of such railroad, within thirty days after notice of such vote, may apply by petition to the supreme court for an examination of the crossing and a decision as to the propriety of such change; and notice thereof being given to the town, the petition may be referred to the county commissioners.

SECT. 6. The county commissioners, after notice, examination, and hearing, as required in case of highways, shall report whether the gates, pass, or bridge required by the town is necessary, and, if not, what is necessary to be done for the public security.

SECT. 7. Upon such report the court shall make such order as to such crossing as they may deem necessary.

SECT. 8. Whenever the proprietors of any railroad deem it necessary for the public safety that an intersection of their road with a highway shall be secured by a bridge, gates, or a pass, they may petition the supreme court for authority to construct the same; and thereupon the same proceedings shall be had as provided in the preceding sections.

SECT. 9. If the land of any person is alleged to be necessary for the construction of any pass or bridge, notice of such hearing shall be given to the owner thereof by the commissioners, and, after hearing, they may set off so much of said land as they deem necessary, and appraise the damages; upon payment or tender of which the proprietors of the railroad may use said land for that purpose.

SECT. 10. Upon application of any owner of land who has sustained damage by the erection of any such gate, pass, or bridge, his damages may be assessed in the manner provided in the preceding section.

SECT. 11. Any party dissatisfied with the damages awarded by the county commissioners may have his damages assessed by a jury, upon appeal, as in the case of highways.

SECT. 12. Upon every report of the commissioners, the court may render such judgment as the case may require, and in proper cases issue execution for any damages and costs by them adjudged.

SECT. 13. If the proprietors of such railroad do not comply with such order they may be fined not exceeding one thousand dollars, and may be restrained from using said road, by injunction, till the order is complied with.

SECT. 14. If the proprietors of any railroad shall not, upon request, establish proper stopping-places and depots for the public accommodation, they may, upon such proceedings as are before prescribed in the case of passes and bridges, be required to establish such depots.

SECT. 15. If the proprietors of the railroad shall not erect such depot and furnish such accommodations within such time, and make such stops, as the court have ordered, they shall forfeit one hundred dollars for each month's neglect.

SECT. 16. If the owner of land and the proprietors of any railroad are not agreed upon the place, number, or kind of cattle-guards, passes, or crossings to be constructed for his accommodation, either party may apply to the county commissioners, who, after notice, hearing, and examination, shall determine the number, places, time, and manner of construction of the same; and their report, filed with the clerk of the supreme court for the county, shall be conclusive.

SECT. 17. If the proprietors of such railroad do not construct such cattle-guards, passes, and crossings within the times limited by said commissioners, and pay any costs adjudged to be paid by them upon request, they shall forfeit twenty-five dollars for each month's neglect.

SECT. 18. The proprietors of every railroad shall be liable for all damages done to the owner of any property upon or near said railroad, in constructing or maintaining their railroad, or in altering any highway, turnpike, bridge, or private way, or by causing any obstruction or injury to any highway; but no action shall be commenced therefor until after sixty days' notice.

SECT. 19. The county commissioners, upon application within said sixty days, after notice, hearing, and examination, shall order any change to be made in said railroad, or any highway, or other way connected therewith, and set off necessary land for the same, and award damages to all persons injured or to be injured by said railroad or the changes of such ways made or ordered.

SECT. 20. Upon making the changes so ordered, payment of the damages so awarded, and the costs allowed by the commissioners, and filing in the clerk's office of the supreme court a certificate of one of the commissioners that the changes ordered by them have been made, the liability of the proprietors of the railroad shall cease.

CHAPTER 162.

FENCES, OBSTRUCTING HIGHWAYS, AND FIRES.

SECTION

1. Fences and cattle-guards, by whom built.
2. On neglect, may be built by owner of land.
3. Proprietors may recover against party agreeing to repair.
4. Speed of engines limited at crossings.
5. Cars not to be shifted across highways, except by license.

SECTION

6. License granted and revoked by selectmen or railroad commissioners.
7. Highways not to be obstructed.
8. Proprietors liable for damage by fire.
9. They may insure exposed property.
10. Insurance by owner inures to proprietors paying.

SECTION 1. The proprietors of every railroad shall erect and maintain a sufficient fence on each side of their road, except at the crossings of public highways; and at every such crossing shall construct and maintain, on each side of such highways, such cattle-guards and fences as will prevent cattle from passing upon their road.

SECT. 2. If the proprietors of any railroad neglect to maintain such fence, any owner of adjoining land may give notice thereof to any agent of said proprietors; and if the same is not repaired or made sufficient within twenty days, such owner may build or repair the same, and recover twice the expense thereof by action on the case against such proprietors.

SECT. 3. If any person has agreed to repair or maintain such fence, and neglects to do so, the proprietors of the railroad may rebuild or repair the same, and recover the expense thereof of such person, by action on the case.

SECT. 4. No proprietors of a railroad shall run their engine, cars, or train at a greater speed than six miles an hour across any highway in or near the compact part of any town.

SECT. 5. No such proprietors shall pass and repass any highway with their engines or cars, for the purpose of shifting off cars or trains, without license of the selectmen of the town, and under such restrictions and regulations as may be therein prescribed, under penalty of twenty dollars for each offence. If, on application therefor, such license shall be refused by the selectmen, such proprietors may appeal from their decision to the railroad commissioners, who, after notice and hearing, for good cause shown, may grant such license.

SECT. 6. Such license shall be granted only upon application therefor in writing, after due notice to all parties interested and a hearing thereon, and may be revoked for good cause, after like notice to the proprietors.

SECT. 7. No such proprietors shall obstruct by their engine, cars, or train, any highway more than two minutes at any one time, under penalty of twenty dollars for each offence, to the party delayed thereby.

SECT. 8. The proprietors of every railroad shall be liable for all damages which shall accrue to any person or property by fire or steam from any locomotive or other engine on such road.

SECT. 9. Such proprietors shall have an insurable interest in all property situate on the line of such road exposed to such damage, and may effect insurance thereon for their own benefit.

SECT. 10. Any insurance effected by the owners of such property thereon shall so far inure to the benefit of the proprietors of such railroad that in case of loss such proprietors shall be entitled to a deduction from the damages of the amount received thereon, except the premium and expense of recovering the same, or to an assignment of the policy, upon payment of the whole damages sustained.

CHAPTER 163.

PASSENGERS, FREIGHT, AND RAILROAD POLICE.

SECTION

1. Tables of fares, etc., to be posted.
2. Rates to be uniform, facilities equal.
3. Penalty for violation.
4. Free passes, to whom limited.
5. Season and excursion tickets.
6. Conductor to collect fares or tickets, and remove passengers not paying.
7. Penalty for violating rule.
8. For evading payment of fare.
9. Prosecutions brought within six months.
10. Passengers' baggage to be carried.
11. Proprietors responsible for safety of baggage; remedy for default.
12. Penalty for injuring baggage.
13. Railroads to give notice of this provision.
14. Trains to stop at crossings.
15. Penalty for violation.
16. Employes of railroads to be appointed police officers; tenure of office.
17. Copy of record of appointment to be filed with town and city clerks.

SECTION

18. Officers of railroad police to wear a badge, except when on duty as detectives.
19. Powers and duties of such officers.
20. Noisy or disorderly passengers may be arrested, detained, and committed without warrant.
21. Loiterers about station houses, etc., may be fined if remaining after request to leave.
22. No person to be ejected from the cars for non-payment of fare except at a passenger station; railroad police may arrest a passenger for non-payment of fare, etc.
23. Compensation of railroad police officers; liable for official misconduct.
24. Power of railroad police officers to cease upon notice filed with town and city clerks in which notice of appointment has been filed.

SECTION 1. A table of prices for the conveyance of persons and property between the several stations on their road, and between their stations and the stations of other roads with which they have a business connection, shall be posted in their depots by the proprietors of every railroad.

SECT. 2. The rates shall be the same for all persons and for like descriptions of freight between the same points: such prices shall not be raised until after thirty days' notice posted as aforesaid. All persons shall have reasonable and equal terms, facilities, and accommodations for the transportation of themselves, their agents and servants, and of any merchandise and other property, upon any railroad owned or operated in this State, and for the use of the depot and other buildings and grounds of such corporation, and, at any

point of intersection of two railroads, reasonable and equal terms and facilities of interchange.

SECT. 3. Every railroad corporation offending against the provisions of section two shall be liable to a penalty not exceeding five hundred dollars, to be recovered by indictment, and to the party aggrieved, in an action of damages.

SECT. 4. No person shall be allowed to pass over any railroad without paying the fare thus established, except stockholders going or returning from the meetings of the proprietors ; the directors, superintendent, treasurer, and clerk of said proprietors, and of roads having a business connection from freight and passengers on said road ; persons in charge of mails and expresses ; and persons poor and in misfortune, who are unable to pay said fare, and to whom passes have been granted.

SECT. 5. Season tickets, by the quarter or other specified time, may be sold at reduced rates ; and special rates may be established for passengers to attend agricultural fairs, public meetings, and parties of pleasure, and for military and other organized companies.

SECT. 6. The conductor shall collect promptly the fares of the passengers so established, or the tickets showing that the same have been paid. If any passenger shall not pay such fare, or give up to the conductor such evidence of payment, the conductor may remove him from the train, and command others to assist him, with like authority and under the same penalty for refusal as sheriffs have in the service of process.

SECT. 7. If any conductor, ticket-master, or other officer of any railroad shall knowingly violate any provision of this chapter relative to fares, he shall be fined not exceeding fifty dollars, and shall be incapable of holding any office or employment on said road.

SECT. 8. No person shall ride upon any car or train who has not paid, or does not pay on demand, the established fare ; and whoever fraudulently evades or attempts to evade the payment of such fare, by either giving a false answer to the collector thereof, or by traveling beyond the point to which he has paid, or by leaving the train without having paid the fare, or otherwise, shall be fined not exceeding ten dollars for each offence.

SECT. 9. Prosecutions for offences against the provisions of this chapter shall be commenced within six months after the offence is committed.

SECT. 10. Every passenger shall be entitled to have taken with him, by the same train, in consideration of the fare paid by him, a reasonable amount of personal baggage; but if such baggage exceed in value one hundred dollars, the proprietors of the railroad shall not be liable for its loss or damage beyond that sum, unless notice is given thereof and extra charges paid for the risk.

SECT. 11. The proprietors of every railroad shall be responsible for the safe transportation and delivery of all such baggage at the station for which the same was received, and in default thereof shall be liable to pay the owner the damage sustained, after the expiration of the thirty days from the time notice of the loss or injury is given to some officer, agent, or servant of said proprietors.

SECT. 12. Any baggage-master, brakeman, express agent, stage-driver, hackman, porter, or other person whose duty it is to handle, remove, or take care of baggage of passengers or travelers, who shall recklessly or willfully injure or destroy any trunk, valise, box, package, or parcel, while loading, transporting, unloading, delivering, removing, or storing the same, shall be punished by a fine not exceeding twenty dollars, to be recovered to the use of the prosecutor or complainant, or by imprisonment not exceeding six months, or by both.

SECT. 13. The president or superintendent of every railroad company in this State shall post up a copy of this and the preceding section at every depot between the termini of their road, and keep the same thus posted.

SECT. 14. When a railroad, whose cars are propelled by steam, is crossed by a similar railroad at grade, every engineer of a passenger train on such roads shall stop his engine within five hundred feet of the intersection of said roads, and shall pass slowly over said intersection; but one stop shall be sufficient for all such crossings within six hundred feet of one another upon the same road, and no stop shall be required at any crossing where a signalman is stationed.

SECT. 15. Every engineer violating the provisions of the preceding section shall forfeit one hundred dollars for each offence, and the corporation on whose road the offence is committed shall forfeit the further sum of two hundred dollars, such forfeitures to be recovered in the county where the offence was committed.

SECT. 16. The selectmen of any town, or the mayor and aldermen of any city, may, upon petition of any railroad corporation

having a passenger station within the limits of such town or city, appoint as many of the employés of said company as they may deem proper, police officers, to act as railroad police, for the purpose and with the powers hereinafter set forth. Such police officers shall hold their office during the pleasure of the selectmen, or mayor and aldermen, by whom they are appointed, unless their powers shall be terminated as provided in section twenty-four.

SECT. 17. A copy of the records of the appointments of any railroad police officer shall be filed by the clerk of the corporation upon whose petition such order is made, with the clerk of each town or city through or into which such railroad runs, and in which it is intended that such police shall act; and the filing of such order shall constitute the persons named therein railroad police within such towns or cities.

SECT. 18. Every officer of the railroad police shall, when on duty, except as detectives, wear a metallic badge in plain view, with the words "railroad police," and the name of the corporation for which he is appointed inscribed thereon.

SECT. 19. Officers of the railroad police may preserve order within and about the premises and upon the cars of the corporation upon whose petition they are appointed; they may arrest, without a written warrant, all idle, intoxicated, or disorderly persons frequenting such premises or cars, and obstructing and annoying, by their presence or conduct, or by profane or indecent language or behavior, the traveling public using the same, and all persons committing thereon any offence known to the laws of this State, and may take the person so arrested to the nearest police station or other place of lawful detention in the county where the offence is committed; and for this purpose they may carry the person so arrested to the next railroad station at which the train on which they are traveling stops, although in another county, and detain them there until the next passenger train goes to the county wherein the offence was committed, on which they shall be carried back, to be taken to said police station or other place of lawful detention. The persons so arrested shall be discharged or taken before a police court or justice of the peace, to answer for their offence, within twenty-four hours after their arrest.

SECT. 20. Whenever any passenger upon a railroad train behaves in a noisy or disorderly manner, any railroad police officer may arrest

him without a written warrant, and remove him to the baggage car of such train, where such officer may confine him until the arrival of the train at some station where he can be placed in charge of an officer, who shall take him to a place of lawful detention.

SECT. 21. Whoever, without right, loiters or remains within any station-house of a railroad company, or upon the platform or grounds adjacent to such station, after being requested to leave the same by any railroad police officer, shall be punished by a fine of not more than twenty dollars.

SECT. 22. No railroad corporation shall eject any person from its cars for non-payment of fare except at some passenger station on its road. Officers of the railroad police may arrest any passenger refusing to pay his fare, and may deliver him into custody at any regular passenger station.

SECT. 23. The compensation of all railroad police shall be paid by the corporations upon whose petition they are respectively appointed. And such railroad police shall be liable to parties aggrieved, for any official misconduct, to the same extent as police officers of towns and cities are liable.

SECT. 24. Whenever any corporation shall cease to require the services of any of the railroad police appointed upon its petition, it may file a notice to that effect in the several offices in which notice of such appointment was originally filed, and thereupon the power of such officers shall cease.

CHAPTER 164.

RAILROAD CONNECTIONS.

SECTION

1. Proprietors to draw cars of connecting roads.
2. Then no other motive power used.
3. Referees to be appointed to settle terms.
4. To settle existing claims.
5. To settle terms in future.
6. Expenses paid equally.

SECTION

7. Award returned to court and judgment.
8. Penalty for non-compliance.
9. Court may require security for money paid.
10. Contracts for transportation limited.

SECTION 1. The proprietors of every railroad shall, at all reasonable times, draw over their road the cars, passengers, and freight

that may be brought and delivered to them by the agents or servants of any other railroad which is authorized to enter on and use the same, or which is authorized to use any connecting railroad having such authority, and all cars, passengers, and freight destined for such railroad, on such terms as the Legislature or others by its authority may from time to time prescribe.

SECT. 2. No proprietors of any railroad over which the cars of other railroads are drawn in conformity to the preceding section shall be required to allow their road to be used by any other than its own motive power.

SECT. 3. In case the proprietors of any railroads interested in such transportation are unable to agree upon the terms thereof, either party, on giving to the other three months' notice, may apply to the supreme court, or to any two justices thereof who are disinterested, in vacation, for the appointment of an impartial, disinterested board of referees; and said court or justices, after due notice to the opposite party, shall appoint such board to determine the same.

SECT. 4. Said referees shall give notice to and hear the parties, and adjust and finally determine all unsettled claims or accounts relating to such transportation, to the time of the appointment of said referees.

SECT. 5. Said referees shall adjust and determine the rates and terms of such transportation, and all matters relating to the connection in future and from the time of their appointment; and their award thereon shall be valid and binding, until the same shall be altered by the parties or by the Legislature, or by a new decision for the time ensuing by a like board of referees.

SECT. 6. The expenses of such referees shall be paid in equal proportion by the several parties interested.

SECT. 7. The award of said referees may be returned to any subsequent law term of said court, and on due notice to the adverse party shall be examined and recommitted or accepted, and final judgment rendered thereon.

SECT. 8. If either party shall not comply with said award, they shall forfeit and pay to the other one thousand dollars for each month's neglect; but either party may comply with any provision of said award under protest.

SECT. 9. The supreme court, or any two justices thereof, upon application of either party, may make such orders for the security

of the money paid over or accruing to any party under such award, pending any legal proceedings relating to said award, as may seem just.

SECT. 10. No contract between two or more railroad corporations, for the use of their roads, shall be legal or binding for a longer time than five years, nor unless sanctioned in writing by the railroad commissioners, and approved by the Governor and Council.

CHAPTER 165.

TRUSTEES OF RAILROADS.

SECTION

1. Trustees to call annual meetings of creditors.
2. If trustees do not, one third of creditors may call meeting.
3. Trustees to make report to meeting.
4. Creditors may choose new trustees.

SECTION

5. Property transferred to new trustees.
6. Trustees not personally liable for damage.
7. The assets liable for such loss.
8. Chancery power of supreme court.

SECTION 1. The trustees to whom any railroad has been assigned or conveyed in mortgage for the benefit of the creditors shall call a meeting of the creditors whose claims are secured by such mortgage once a year, to be holden at some place on or near said railroad, by publication in two daily papers published in Boston, and one paper in each county in which such railroad is located.

SECT. 2. If such trustees, on application of such creditors to the amount of one third of the whole sum secured, do not within fourteen days call such meeting, five or more such creditors, holding the like amount of claims, may call such meeting in the same manner.

SECT. 3. At such meeting, said trustees shall make a report of the state of the trust property, and of their proceedings and management in relation thereto, according to the usual custom of directors of railroads to the stockholders.

SECT. 4. Said creditors, at such meeting, may elect by ballot three or five trustees, being creditors, and a majority at least residents of the State; each creditor being entitled to one vote for each hundred dollars of his debt, and having the same right to vote by proxy as stockholders of railroads at their meetings.

SECT. 5. Upon the election of new trustees, the interest of the former trustees shall be transferred to and vest in such new trustees ; and the former trustees shall render and settle an account of their trust to and with such successors, and pay and transfer to them such mortgage estate and any balances in their hands ; and if a balance is due said retiring trustees, the assets of the trust shall be charged therewith.

SECT. 6. No trustees or assignees of any railroad mortgage who have the railroad in their charge shall, as such and without their own default, be personally responsible for any damage, by collision or force, occurring to any passenger or freight upon said railroad.

SECT. 7. In case of such damage, the company assigning or mortgaging the railroad shall be liable ; and the assets in the hands of the trustees shall be holden for such damage as part of the expenses of the trust, in preference to the claims of the general creditors of the company.

SECT. 8. The supreme court shall have summary power to make all orders and decrees necessary to carry such trusts into effect.

CHAPTER 62.

TAXATION OF RAILROADS AND TELEGRAPH LINES.

SECTION

1. Railroads to be assessed upon their actual value ; exemptions.
2. To be determined by state board of equalization.
3. Railroads to furnish evidence of value.
4. Hearings and determination of board.
5. Doomage for neglect to furnish required evidence.
6. Payment of tax and penalty for default.
7. Tax received by treasurer to be distributed.
8. Proportioned to towns for their use.

SECTION

9. Names and residences of stockholders to be recorded by treasurer.
10. To be furnished by state treasurer on or before June 1.
11. Inventory of shares in towns to be taken, and statement furnished state treasurer.
12. Penalty and liability for neglect.
13. Disagreement in returns to be adjusted by state treasurer.
14. Telegraph lines to pay tax of one per cent on their value.
15. Assessment to be made by board of equalization and certified to state treasurer.

SECTION 1. Every railroad corporation in this State, not exempted from taxation, shall pay to the State an annual tax upon the actual value of the road, rolling stock, and equipments on the first

day of April of each year, as near as may be in proportion to the taxation of other property in April of each year, in the several towns and cities in which such railroad is located, to be distributed according to existing laws. But the capital of every railroad, the construction of which was commenced since the fifteenth day of September, eighteen hundred and sixty-eight, or hereafter constructed in this State, shall be, and the same is hereby exempted from taxation for the term of ten years from the time of the commencement of the construction of such railroad.

SECT. 2. The state board of equalization shall determine the actual value of every railroad liable to taxation, and the rate at which the same shall be taxed.

SECT. 3. Every such corporation shall furnish to the state board of equalization all evidence necessary for their action, or which may be required by them.

SECT. 4. The state board of equalization shall appoint a time and place of hearing, shall hear all parties interested, and shall file a certificate of their determination with the state treasurer.

SECT. 5. If any railroad corporation shall neglect seasonably to lay the required evidence before the state board of equalization, they shall be doomed to pay a tax of two per cent on their authorized capital stock and debt, reckoned at the par value, and certificates thereof shall be filed with the state treasurer.

SECT. 6. Every railroad corporation shall pay to the state treasurer, in the month of September, annually, the tax so assessed, and, upon their neglect, the state treasurer shall add thereto interest after such default at the rate of ten per cent per annum, and shall issue his extent for the sum unpaid, and for interest as aforesaid until payment is made; and all property of the corporation on the first day of April preceding shall be liable for its payment.

SECT. 7. The state treasurer shall seasonably apportion all taxes so received by him, in each year, in the following manner:

I. To the towns in which any railroad is located one fourth of the tax paid by the railroad corporation, of which each town shall receive its proportion according to the share of the capital of the corporation expended therein for its buildings and right of way.

II. To each town in the State in which any stock in the road was owned on the first day of April preceding, such proportion of

the residue of said tax as the number of shares owned in said town bears to the whole number of shares in the corporation.

III. The remainder for the use of the State.

SECT. 8. The state treasurer shall pay to each town its proportion of each railroad tax, whenever the same shall have been paid to him, to be appropriated as other town money.

SECT. 9. The treasurer of every railroad corporation shall keep in his office, in a book for that purpose, the names and residences of all the stockholders therein, and the number of shares owned by each; and shall enter therein any change of residence of any stockholder which shall come to his knowledge.

SECT. 10. Such treasurer shall transmit to the state treasurer, on or before the first day of June annually, a statement under oath of the number of shares in such corporation owned in each town in this State, and by whom, on the first day of April preceding. Any such treasurer who shall neglect to comply with any provision of this or the preceding section shall forfeit one hundred dollars.

SECT. 11. The assessors of every town shall annually take an inventory of the number of shares owned by the several inhabitants therein in each railroad corporation in this State, on the first of April; and on or before the first day of June, annually, shall transmit to the state treasurer a statement under oath of the number of shares in each railroad corporation owned in such town, as ascertained from such inventory or otherwise; the names of the owners and number of shares owned by each, and in what corporations; and that said shareholders were, on the first day of April preceding, inhabitants of said town.

SECT. 12. If any town shall, by its assessors, neglect to comply with the provisions of the preceding section, it shall receive no part of the tax which it would be entitled to receive from the state treasury upon the railroad shares owned therein; and such assessors shall be liable to such town for all damages arising from their default.

SECT. 13. In case of disagreement of the returns of the railroad treasurers and of the assessors, the state treasurer shall determine, upon the evidence, to what town any shares shall be credited.

SECT. 14. Every telegraph corporation, company, or person shall

annually pay into the state treasury, for the use of the State, a tax of one per cent upon the value of any telegraph line owned or operated by said corporation, company, or person, including the office furniture or machinery. And said tax shall be paid on or before the first day of September.

SECT. 15. The board of state equalization shall appraise their said lines and office furniture and machinery at their actual value, and assess the corporation, company, or person on said valuation at the rate of one per cent, said assessment to be made in the month of August and certified to the state treasurer by the fifteenth of said month. The state treasurer shall thereupon notify said parties against whom the tax is assessed, and the same shall be paid into the treasury on or before the first day of September following; and the tax so assessed and paid shall be in lieu of all other taxes.

LAWS OF JUNE SESSION, 1879.

CHAPTER 55.

AN ACT IN RELATION TO FREIGHT CHARGES ON RAILROADS.

SECTION

1. Freight tariff regulated.
2. Tariff on through freights not affected.

SECTION

3. Penalty for violation.
4. Takes effect, when.

SECTION 1. No railroad owned or operated in this State shall charge a higher tariff on like classes of freight by the carload, when delivered at any station on its line, than is charged to deliver the same at any station on the road when the transportation is for a greater distance.

SECT. 2. Nothing in section one shall be so construed as to affect the rights of any railroad owned or operated in this State from establishing such rates on freights shipped over their lines from points outside of the State to points beyond the State as may seem for their best interests.

SECT. 3. Any railroad corporation or company violating any of the provisions of this act shall be fined not exceeding five hundred

dollars, to be recovered in an action of debt by the party aggrieved, or any person who may sue therefor.

SECT. 4. This act shall take effect upon and after its passage.

[Approved July 19, 1879.]

LAWS OF JUNE SESSION, 1881.

CHAPTER 81.

AN ACT PROVIDING FOR THE TRANSPORTATION OF MILK UPON RAILROADS.

SECTION

1. Railroads not to discriminate against small dealers in milk.
2. Railroad commissioners to revise tariff, when.

SECTION

3. Penalty for refusing to carry at rates fixed by commissioners.
4. Takes effect, when.

SECTION 1. No railroad corporation shall contract with any person or corporation to furnish facilities for the transportation of milk, or shall itself carry the same in large quantities over any portion of its line, without at the same time establishing a tariff under which it will receive, forward, and deliver milk by the can over the same portion of its line for any person tendering the same, in such way that the milk so tendered by the can shall be carried under fairly proportionate advantages in every respect, including price, time, and reasonable care for the same, as the milk carried in large quantities, or through facilities furnished by contract.

SECT. 2. On the petition of any person desiring to forward milk over any railroad, it shall be the duty of the board of railroad commissioners to investigate and ascertain at what rates facilities for the carriage of milk under contract or in large quantities are furnished by the corporation operating such railroad, and to compare the same with the tariff of said corporation for the carriage of milk from and to the same places by the single can, including a reasonable compensation for the care of the same; and if the tariff for the care and carriage of such milk by the can is found to be unreasonably more than the rate charged for its carriage under contract, or in larger quantities, said board of railroad commissioners shall revise such

tariff and fix such rates therefor as shall be fairly proportionate with such contract or large-quantity rates, and notify the corporation of such revision; *provided*, that milk received by one corporation from another shall not be considered as milk received at the point of junction of the roads of such corporations, so as to regulate the rates charged on milk tendered for carriage at such point of junction.

SECT. 3. A corporation which shall refuse or neglect to receive, forward, or deliver milk by the can at the tariff rates fixed and notified to it by the board of railroad commissioners in the manner provided in the preceding section shall forfeit to the person tendering such milk the sum of ten dollars for each and every can which it so refuses to receive or neglects to forward or deliver, to be recovered in an action of tort.

SECT. 4. This act shall take effect on and after its passage.

[Approved August 17, 1881.]

CHAPTER 104.

AN ACT IN RELATION TO RAILROAD BRIDGES.

SECTION

1. Railroads to erect bridge guards; penalty for neglect.

SECTION

2. Takes effect, when.

SECTION 1. That every railroad corporation shall erect and maintain suitable bridge-guards at every bridge or other structure, any portion of which crosses the railroad less than eighteen feet above the track, such guards to be approved by the board of railroad commissioners, and to be erected and adjusted to their satisfaction. Any corporation which refuses or neglects to comply with the provisions of this act shall, for each month of continuance in such neglect or refusal, forfeit the sum of fifty dollars; and whoever shall willfully destroy or break any such bridge-guard shall forfeit a sum not exceeding one hundred dollars, and be liable to imprisonment not exceeding thirty days.

SECT. 2. This act shall take effect December 1, 1881.

[Approved August 19, 1881.]

LAWS OF JUNE SESSION, 1883.

CHAPTER 26.

AN ACT TO AMEND CHAPTER 162, SECTIONS 5 AND 7, OF THE
GENERAL LAWS.

SECTION

1. Penalty for shifting railway trains across highways without license increased.

SECTION

2. Penalty for obstructing highways increased.

SECTION 1. Section 5 of chapter 162 of the General Laws is amended by striking out the words "twenty dollars" in the first clause thereof, and inserting in the place thereof the words "two hundred dollars," so that the same shall read: "No such proprietors shall pass and repass any highway with their engines or cars for the purpose of shifting off cars or trains without license of the selectmen of the town, and under such restrictions and regulations as may be therein prescribed, under penalty of two hundred dollars for each offence."

SECT. 2. Section 7 of chapter 162 of the General Laws is amended by striking out the words "twenty dollars," and inserting in place thereof the words "two hundred dollars," so that the section shall read: "No such proprietors shall obstruct by their engine, cars, or train, any highway more than two minutes at any one time, under penalty of two hundred dollars for each offence, to the party delayed thereby."

[Approved August 7, 1883.]

CHAPTER 27.

AN ACT RELATING TO THE WANTON AND MALICIOUS STOPPING OF
RAILROAD TRAINS.

SECTION

1. Penalty for wantonly hindering or stopping railway trains.

SECTION

2. Does not apply to horse railways.
3. Takes effect, when.

SECTION 1. If any person shall maliciously or wantonly stop, hinder, or delay, or by any false alarm or signal, or otherwise, cause

to be stopped, hindered, or delayed, or shall in any manner maliciously or wantonly interfere with the running, management, or control of any railroad train, car, or locomotive, he shall be punished by imprisonment not exceeding ten years, or by a fine not exceeding one thousand dollars, or by both such fine and imprisonment.

SECT. 2. This act shall not apply to horse railroads.

SECT. 3. This act shall take effect upon its passage.

[Approved August 7, 1883.]

CHAPTER 84.

AN ACT FOR THE PROTECTION OF PERSONS TRAVELING UPON RAILROAD TRAINS.

SECTION

1. Provisions for removing bushes,
etc.
2. Report of railroad commissioners.

SECTION

3. Order of court thereon.
4. Takes effect, when.

SECTION 1. Whenever the proprietors of any railroad deem it necessary for the public safety that bushes or other obstructions at or near any highway or farm crossing at grade, or upon the inside of any curve, outside of the thickly settled portion of any town or city, be removed, they may petition the supreme court for authority to take such land as may be necessary and keep the same clear of all such obstructions; and notice thereof being given to the owner of the land, the petition may be referred to the railroad commissioners.

SECT. 2. The railroad commissioners, after notice, examination, and hearing, as required by county commissioners in the case of highways, shall report whether the taking of the whole or any portion of the land described in the petition is reasonably necessary, and if not, what is necessary to be done for the public safety.

SECT. 3. Upon such report the court shall make such order as to such curve or crossing as they may deem necessary.

SECT. 4. This act shall take effect from and after its passage.

[Approved September 11, 1883.]

CHAPTER 100.

AN ACT PROVIDING FOR THE ESTABLISHMENT OF RAILROAD
CORPORATIONS BY GENERAL LAW.

SECTION

1. Not less than twenty-five persons may associate, by written articles of agreement, to form a railroad corporation.
2. Articles of association; capital stock; directors.
3. Name; capital stock may be reduced; gauge of road; clerk; treasurer; vacancy; copy of articles of association to be filed and published.
4. Application to justice of supreme court.
5. Articles of association to be recorded in office of secretary of state; form of certificate; certificate to be recorded.
6. First meeting, how called; by-laws; directors and other officers.
7. Mode of determining the public exigency.
8. Commissioners to report and locate road; proviso.
9. Persons aggrieved may file objections; location to be recorded.
10. Assessment of damages.
11. Mode of increasing capital stock; of reducing it; of changing gauge of road.
12. Time of construction limited.
13. Not to enter for construction nor run trains until.

SECTION

14. Railroads may build branches.
15. Change of gauge.
16. Maps and profiles to be filed; annual meetings.
17. Contract and lease; union of corporations; by-laws; increase of rates prohibited; competing roads; lease; terms of lease and union to be recorded, and map filed; general manager's office; first meeting; rights of State unimpaired.
18. Corporations chartered by other States.
19. Stockholders' assent and interests.
20. Bondholders' assent and interests.
21. Tender of amount of appraisal.
22. New stock and bonds.
23. Amount of new stock limited.
24. Amount of dividends limited.
25. New corporation may issue bonds.
26. Fares and freights; connecting roads to draw each other's cars; depots; terminal accommodations of roads of different gauges.
27. Freight charges regulated.
28. Penalty.
29. Repealing clause.
30. Takes effect, when.

SECTION 1. Any number of persons not less than twenty-five, a majority of them being inhabitants of this State, may associate themselves together, by written or printed articles of agreement, for the purpose of forming a railroad corporation, and upon complying with the provisions of this act and of such of the general laws of the State as relate to the formation and organization of railroad corporations not inconsistent with this act, shall, with their associates and successors, be and remain a corporation, with all the powers and privileges, and subject to all the duties, liabilities, and restrictions,

set forth in this act, or in the laws of this State applicable to railroad corporations, and incident to corporations of a similar nature.

SECT. 2. The articles of the association shall state the name of the corporation, the termini of the railroad proposed to be built, its length as near as may be, and the name of each city, town, and county through or into which its route extends, its gauge, the amount of the capital stock of the corporation, which shall not be less than fifteen thousand dollars for each mile when the gauge is more than three feet, and not less than six thousand dollars for each mile when the gauge is three feet or less, and shall be divided into shares of one hundred dollars each, and the names of at least seven persons to act as a board of directors until others are chosen by the corporation. Each associate shall subscribe to the articles his name, residence, post-office address, and the number of shares of stock which he agrees to take, but no subscriber shall be bound to pay beyond ten per cent of the amount of his subscription unless the corporation is established.

SECT. 3. The corporate name assumed shall be one not in use by any other corporation in this State, and shall be changed only by act of the Legislature. The associates may from time to time, at any meeting called for the purpose, reduce the amount of the capital stock, but not below the limit prescribed in the preceding section, and not to reduce the par value below one hundred dollars per share; and they may in like manner change the gauge of their road. The directors shall be subscribers to the articles of the association, and a majority of them shall be inhabitants of this State. They shall appoint a clerk, who shall be an inhabitant of this State, and shall be sworn to the faithful discharge of his duties, and who shall record the doings of the directors and proceedings of the association. They shall also appoint a treasurer of the association, who shall give bond to their satisfaction for the faithful performance of his trust. The clerk and treasurer thus appointed shall hold their respective offices until clerk and treasurer of the corporation are duly chosen or appointed. The directors may fill any vacancy happening in their own board or in the office of clerk or treasurer previous to the establishment of the corporation. The directors shall cause a copy of the articles of association to be filed with the clerk of each city or town through or into which the railroad is proposed to be located, with a plan of line showing the termini and the length of railroad

in each town, and also shall cause the articles of association to be published in some newspaper in each county in which said railroad is proposed to be located; and the certificate of the clerk of the association, or the affidavit of any other person, upon or annexed to the articles of association, shall be evidence of such publication.

SECT. 4. Whenever the full amount of the capital stock, as provided in section two, has been subscribed in good faith by responsible persons, such association may apply to any justice of the supreme court, who shall appoint a time and place of hearing, give such notice thereof as justice may require, and when it shall be made to appear to such justice that the requirements of this act and such of the general laws of the State as relate to the formation of railroad corporations have been complied with, such justice shall annex to such articles of association a certificate that these requirements of the law have been complied with.

SECT. 5. The directors shall thereupon cause the articles of association, with all the certificates indorsed thereon or annexed thereto, to be recorded in the office of the secretary of state, who, upon the payment to him of his reasonable charges therefor, shall record the same in a book kept for that purpose, and shall issue a certificate, substantially in the following form, to be annexed to said articles of association :

THE STATE OF NEW HAMPSHIRE.

Be it known, that whereas _____ have associated themselves together with the intention of forming a corporation under the name of the _____ for the purpose of locating, constructing, maintaining, and operating a railroad [description of road as in articles of association], and have complied with the laws of this State relating thereto, therefore, I, _____ secretary of state, do hereby certify that the persons aforesaid, their associates and successors, are legally established as a corporation under the name of the _____, with all the powers and privileges, and subject to all the duties, liabilities, and restrictions, of the laws of this State applicable to railroad corporations.

In witness whereof, I have hereunto subscribed my name, and affixed the seal of said State, this

[State seal.]

day of

in the year

, *Secretary of State.*

The certificate so executed shall be recorded by the secretary of state, and the same, with the articles of association and certificates annexed thereto, shall also be recorded in the books of the corporation; and the original, or a duly certified copy thereof, shall be evidence of the establishment of the corporation at the date of such certificate.

SECT. 6. Upon the issue and record of such certificate, the directors may call the first meeting of the corporation at such time and place in this State and for such purposes as they may think the interests of the corporation require, which shall be notified by the clerk of the association by depositing in the post-office, prepaid to the place of their destination, written or printed notices of the time, place, and objects of such meeting, by him signed, seven days at least prior to the day of such meeting, addressed to each stockholder or subscriber for stock at his post-office address; and said clerk shall make a record of his doings in notifying such meeting in the records of the association. At such first meeting, or any adjournment thereof, the corporation may adopt by-laws, choose directors, and all necessary officers and agents, and transact any other business of which notice has been given in the notification of the meeting.

SECT. 7. When the corporation has been duly organized as herein provided, the directors may apply by petition to the supreme court, at the law term or adjourned term thereof, setting forth the facts relating to the establishment and organization of the corporation, its termini, and the route on which it is desired that said railroad shall be located, to determine whether the public good requires the laying out and construction of such railroad. Said court shall forthwith give such notice as justice may require, and, if no sufficient objection is shown, may refer said petition to the railroad commissioners, or to three referees to be appointed by it, who shall give notice, hear the parties, as county commissioners are required to do in cases of petitions relating to highways referred to them, at which hearing any person whose business or property may be affected by such laying out and construction shall be heard.

SECT. 8. Such commissioners or referees shall report to the court whether, in their opinion, the public good requires the laying out, construction, and operation of such railroad on the route set forth in such petition, and shall locate the same in the same manner as that

provided by the general laws for the location of a railroad; *provided*, that such location shall not be made on or over any portion of any of the routes for which charters have already been granted to any existing railroad corporation not yet located, unless such corporation shall fail to file a location of its route, as now provided by law, on or before the time limited in its charter, and that no location shall be made upon or over any portion of the location of any railroad except when necessary for connections and crossings; *provided*, that this act shall not prevent the location and construction of a railroad from North Stratford to Canada line by any railroad corporation after the expiration of the time limited in the charter of the Boston, Concord & Montreal Railroad.

SECT. 9. Any person aggrieved by the decision of the court or referees may file his objection, in writing, with the clerk of the court, and be heard thereon at the term of the court at which such report is made; and said court may render judgment on said report, or make such order therein as justice may require; and the location of the route of said railroad, as fixed by the decision of said court, shall be recorded by the secretary of state, and said route may be changed in the mode now prescribed by law.

SECT. 10. If said court shall render judgment laying out said railroad, the directors may apply to the railroad commissioners to assess the damages to landholders and other parties interested, as provided by law.

SECT. 11. If the capital stock fixed in the articles of association, upon the filing of which the certificate of establishment was issued, is found to be insufficient for the construction or equipment of the railroad, the corporation, at a meeting called for the purpose, may increase the same from time to time to the amount necessary for the purpose aforesaid, giving to existing stockholders the right to take the new stock in proportion to their old stock before offering the same to new subscribers. The corporation may in like manner reduce the amount of its capital stock, reducing the stock of each stockholder *pro rata*, provided the stock shall never be reduced below the limit prescribed in section two, and the par value shall not be reduced below one hundred dollars per share, and may in like manner change the gauge of the road; but if any such increase or reduction of capital or change of gauge is made, a certificate of the

fact, signed by the president and clerk of the corporation, shall, within thirty days thereafter, be recorded in the office of the secretary of state, as provided for the original location.

SECT. 12. If such corporation does not begin the construction of its road, and expend thereon at least twenty per cent of the amount of its original capital stock within four years after the date of its certificate of establishment, and does not complete its road and open the same for use within six years from said date, its corporate powers and existence shall cease, except as to such parts of said railroad as then shall have been completed for use.

SECT. 13. No railroad corporation shall enter upon any land or other property for the purpose of constructing a road until an amount equal to at least twenty per cent of the par value of each share of the capital stock has been actually paid in ; nor shall any corporation commence running its trains until its paid-up capital stock shall be equal to at least one half its cost, including equipment.

SECT. 14. Any railroad corporation now or hereafter in operation in this State may build branches or extensions by complying with the provisions of sections seven, eight, nine, ten, and thirteen of this act, and to such of the general laws of the State as apply thereto, may issue stock solely for the construction and equipment of such branch or extension ; *provided*, that such new stock shall be entitled to dividends only at the same rate as may by law be divided on the stock of the corporation before such issue, or without additional capital stock of its indebtedness is not thereby increased.

SECT. 15. No corporation organized to construct its road on a gauge of three feet or less shall change such gauge to more than three feet without complying with all provisions of law in relation to the capital stock of roads of the gauge last named ; and the fact that such provisions have been complied with shall be shown to the satisfaction of one of the justices of the supreme court, and indorsed by him upon the certificate of such change of gauge, before recording the same in the office of the secretary of state.

SECT. 16. Whenever the railroad of any corporation organized under this act shall be finished and opened for use, the corporation shall, within one year thereafter, cause a map and profile thereof, with tables of grade and curvature, and a statement of other char-

acteristics of the road, in such form as the railroad commissioners may prescribe, to be certified by its engineers, and filed in the office of the secretary of state. Every such railroad corporation shall hold at least one meeting in each year for the choice of such number of directors as the by-laws may prescribe, which shall be called the annual meeting, and this and all other corporate meetings shall be holden at such time and at such convenient place in this State as the by-laws may prescribe or the directors appoint.

SECT. 17. Two or more railroad corporations may contract that either corporation shall perform all the transportation of persons and freight upon and over the road of the other, or any road leased or operated by it, and any railroad corporation may lease its road, railroad property, and interests to any other railroad corporation, upon such terms and for such time as may be or may have been agreed to by the directors, and as may be or may have been approved by two thirds of all the votes cast on that subject by the stockholders of each corporation voting according to law thereon at meetings of said stockholders properly notified and held for that purpose. And two or more railroad corporations may apply to the supreme court, at the law term, to determine whether the public good will be promoted by the union of said corporations, and, if said court shall decide that the public good will be promoted by a union of said corporations, they may unite and form a new corporation, which shall have all the powers, privileges, franchises, property, and rights of every kind, assume and be subject to all the duties and liabilities of the corporations forming such union, or either of them, and of railroad corporations, under the laws of this State and under their several charters, upon such terms and conditions and with such guaranties as may be or may have been agreed upon by two thirds of all the votes cast on that subject by the stockholders of each corporation, voting according to law thereon at meetings of said stockholders properly notified and held for that purpose; and may adopt by-laws providing for the number and manner of choosing its directors and other officers, and define their duties, and the time and manner of holding meetings of the corporation, and for such other purposes as its interests may require; *provided*, that the rates for fares and freights existing August 1, 1883, shall not be increased on any part of the roads so leased or united, and the decrease in the

operating expenses consequent upon the leasing or uniting of any roads shall be met from time to time by a reasonable and just reduction of fares and freights; but no competing railroads now prohibited by law from leasing or uniting shall have a right under the provisions of this act to unite with or lease each other unless said roads, or one of them, has heretofore leased or united with some other road or roads for the purpose of forming a continuous line, or shall hereafter, or at the time of such lease or union, unite with or lease some other road for such purpose. When any railroad is leased under the provisions of this act, said lease shall be recorded by the secretary of state, and when a new corporation is formed, as provided in this section, the terms of such union shall be recorded by the secretary of state, and it shall file a map and profile of its road, as required by section sixteen of this act; and when such railroad within this State has been organized or formed by a lease or union of roads organized under the laws of the State, the principal place of business of the corporation and the offices of the superintendent or general management shall be located therein, unless otherwise provided by the Legislature. The first meeting of a new corporation formed by the union of two or more existing railroad corporations shall be called by the presidents of the corporations composing such union, or either of them, and seven days' notice shall be given of the time and place of said meeting by publication in one or more newspapers in each county where either of said railroads are [is] located; but nothing in this act shall impair the right of the State to hereafter take any or all of the roads that may be leased or united under it, according to the provisions of their several charters or the general laws of the State.

SECT. 18. Railroad corporations created by the laws of other States, operating roads within this State, shall have the same rights for the purposes of operating, leasing, or uniting with other roads as if created by the laws of this State.

SECT. 19. Such new railroad corporation may, if legally necessary to perfect such union, procure the assent of all the stockholders of the several corporations to the terms of union, and they may exchange their shares of stock in the former corporation for shares in the new corporation on such terms as have been agreed to by the votes of the corporation as aforesaid. If from any cause such new

corporation shall be unable to procure such consent, such corporation or person holding stock may, if legally necessary to perfect such union, apply to the supreme court, have the value of the interest of such stockholder in the corporation, over and above its debts and liabilities, appraised by said court, or referees appointed by it, or by a jury under the direction of said court.

SECT. 20. In like manner, said corporation may, if legally necessary, procure the assent of any bondholder or person holding a lien on the property of the corporation. If from any cause said new corporation is unable to agree with the person holding such bond or other lien, either party may, if legally necessary so to do, apply to the supreme court, have the value of such interest in the property of the corporation appraised in the same manner as provided in section nineteen of this act.

SECT. 21. On the payment or tender of the amount of such appraisal, with interest to the date of such tender or payment, to the party holding such stock, bonds, or lien, the interest of such holder of stock, bonds, or lien shall cease.

SECT. 22. Said corporation may issue new stock or bonds, and sell the same to an amount sufficient to make such payment or tender, and such bonds may be secured by mortgage of its road, if the corporation shall so vote.

SECT. 23. Said corporation may fix the amount of its capital stock, and bring the stock of the uniting corporations to a common basis, but the capital stock of said new corporation shall not exceed the aggregate capital stock of such corporations actually issued and paid for at par at the time of such union, or that may be issued and paid for at par for the construction of branches or extension, under section fourteen of this act.

SECT. 24. No dividend shall be made by such united corporation to any greater amount in the aggregate than such separate corporations are allowed by law to make at the date of such union.

SECT. 25. Any railroad corporation organized or united under the provisions of this act may issue its bonds for the purpose of constructing, completing, improving, or equipping its road, and for the purpose of liquidating the indebtedness of the corporation to an amount not exceeding its capital stock actually paid in at the date of such issue, and may mortgage its road to secure the same if the corporation shall so vote.

SECT. 26. The directors of railroad corporations shall from time to time establish reasonable rates for the transportation of passengers and freight over their railroads; and when two or more railroads, organized under the laws of this State, are authorized by law to connect in any city or town in this State, each of them shall, at reasonable times and for reasonable compensation, draw over its road the cars, passengers, and freight delivered to it by any railroad which is authorized to enter on and use the same, or which is authorized to use any connecting railroad having such authority; and each of them shall, for a reasonable compensation, provide upon its road convenient and suitable depot accommodations for the passengers and freight of the other corporation passing to, from, and over it. If the corporations cannot agree upon the terms and conditions upon which accommodations shall be furnished for the passengers and freight of the other, or if two corporations operating roads at different gauges cannot agree as to the requisite terminal accommodations, or as to the manner in which passengers and freight shall be transferred from one road to the other and forwarded, the supreme court, upon the petition of either party, and after notice to the other, shall hear the parties, and determine (having reference to the convenience and interest of the corporations and of the public to be accommodated thereby) the terms and conditions upon which such accommodations for passengers and freight, or requisite terminal accommodations and manner of transferring passengers and freight as aforesaid, shall be furnished, and upon the application of either party shall determine all questions between the parties in relation to the transportation of passengers and freight; and the award of said court shall be binding upon the respective corporations for one year, or until said court shall revise and alter the same.

SECT. 27. No railroad corporation shall charge or receive for the transportation of freight to any station on its road a greater sum than is at the time charged or received for the transportation of the like class and quantity of freight from the same original point of departure to a station at a greater distance on its road in the same direction. Two or more connecting railroads in this State shall not charge or receive for the transportation of freight to any station on the road of either of them a greater sum than is at the time charged or received for transportation of the like class and quantity of freight from the same original point of departure to a station at a

greater distance on the road of either of them in the same direction. In the construction of this section, the sum charged or received for the transportation of freight shall include all terminal charges, and the road of a corporation shall include all the road in use by it, whether owned or operated under a contract or lease.

SECT. 28. A railroad corporation which violates any provision of the preceding section, in addition to liability for all damages sustained by reason of such violation, shall be liable for each offence to a penalty of five hundred dollars, to be recovered in an action of tort to his own use by the party aggrieved, or to the use of the State by the attorney-general or the solicitor of the county in which such violation was committed; but no such action shall be maintained unless the same is brought within two years from the date of such violation.

SECT. 29. The Legislature may alter, amend, or repeal this act when the public good may require the same.

SECT. 30. This act shall take effect upon its passage.

[Approved September 14, 1883.]

CHAPTER 101.

AN ACT TO ESTABLISH A BOARD OF RAILROAD COMMISSIONERS.

SECTION

1. Board of railroad commissioners; appointment, and tenure of office; vacancy; chairman; clerk; eligibility.
2. Salary; office; free transportation; experts and agents; expenses; accountant.
3. Provision for payment of salaries and expenses.
4. Powers and duties of board; tariff.
5. May institute proceedings against corporations for violating law.
6. May give notice of required repairs, etc.
7. Complaint by cities and towns.
8. Accidents.
9. Corporations to furnish information to the board.

SECTION

10. Legal liability of corporations.
11. Examination of books and accounts; publication of statement.
12. Special examination.
13. Board to have access to lists of stockholders.
14. Penalty for refusing to comply with directions of board.
15. Witnesses.
16. Annual return of corporations; report of board.
17. The board of railroad commissioners.
18. Takes effect on its passage; repealing clause.

SECTION 1. There shall be a board of railroad commissioners, consisting of three able and competent persons. The Governor, with

the advice and consent of the Council, shall, on or before the first day of October, 1883, appoint said board, the first of whom shall be chairman and hold his office for three years, the second for two years, and the third for one year, from said day, and before said day in each year thereafter shall appoint one commissioner to continue in office for three years from said day; and if a vacancy occurs, the Governor shall in the same manner fill it for the residue of the term, and in like manner remove any member of said board and appoint another, when the public good shall require it; *provided*, that there shall not be, at the same time, more than two members of said board of the same political party, and that the person appointed as chairman shall be named as such in his commission. The board shall elect one of its members clerk, who shall keep a full and accurate record of its proceedings and serve such notices as the board may require. The commissioners shall be sworn before entering upon the discharge of their duties. No person in the employment of or owning stock in a railroad corporation shall be a member of said board. No such member shall personally, or through a partner or agent, render any professional service, or make or perform any business contract with or for a railroad corporation existing under the laws of this State, excepting contracts made with them as common carriers, nor shall he directly or indirectly receive a commission, bonus, discount, present, or reward from any such corporation.

SECT. 2. The annual salary of the chairman of the board shall be twenty-five hundred dollars, that of the member elected clerk twenty-two hundred dollars, and that of the other member two thousand dollars, payable quarterly from the treasury of the State. The board shall be provided with an office in the state-house, or in some other suitable place in the city of Concord, in which its records shall be kept. The members of said board shall have free transportation upon all the railroads in the State during their term of office, and said board may employ and take with it experts or other agents whose services it deems to be temporarily of importance. The board may expend a sum not exceeding two hundred dollars annually in procuring necessary books, maps, statistics, and stationery, and in defraying expenses incidental and necessary to the discharge of its duties, and may employ an accountant skilled in the methods of railroad accounting, who shall, under its direction, supervise the methods

by which the accounts of corporations operating railroads are kept, and may expend a sum not exceeding five hundred dollars annually for that purpose. A statement of such expenditures shall accompany its annual report.

SECT. 3. The annual expenses of the board, including the salaries of its members and the expense of accountant, shall be borne by the several railroad corporations, according to their gross receipts, and shall be apportioned by the board of equalization, who, on or before the first day of July in each year, shall assess upon each of said corporations its just proportion of such expenses, in proportion to its said receipts for the year next preceding that in which the assessment is made, and such assessment shall be collected in the manner provided by law for the collection of taxes upon railroad corporations.

SECT. 4. In addition to the authority, powers, and duties now by law pertaining to the board of railroad commissioners, except so far as the same are changed by this act, the board shall have general supervision of all railroads, examine them, keep itself informed as to their condition, the manner in which they are operated with reference to the security and accommodation of the public, and the compliance of the several corporations with their charters and the laws of the State. It shall be the duty of said board to fix tables of maximum charges for the transportation of passengers and freights upon the several railroads operating within this State, and shall change the same from time to time as in the judgment of said board the public good may require; and said rates shall be binding upon the respective railroads.

SECT. 5. The board, whenever in its judgment any such corporation has violated a law, or neglects in any respect to comply with the terms of the act by which it was created, or with the provisions of any law of the State, or any of the lawful directions of the board, shall give notice thereof in writing to such corporation, and, if the violation or neglect is continued after such notice, shall forthwith present the facts to the attorney-general, who shall take such proceeding thereon as shall insure compliance with the laws. But in case the board shall be of opinion that public good requires, it may institute and prosecute, in the name and behalf of the State of New Hampshire, such proceedings as they may deem expedient.

SECT. 6. The board, whenever it deems that repairs are necessary upon any railroad, or that an addition to its rolling-stock, or an addition to or change of its stations or station-houses, or a change in its rates of fare for transporting freight or passengers, or in the mode of operating its road and conducting its business, is reasonable and expedient in order to promote the security, convenience, and accommodation of the public, shall in writing inform the corporation of the improvements and changes which it considers to be proper, and a report of the proceedings shall be included in the annual report of the board.

SECT. 7. Upon the complaint and application of the mayor and aldermen of a city, or the selectmen of a town, within which a part of any railroad is located, the board shall examine the condition and operation thereof; and if twenty or more legal voters in a city or town, by petition in writing, request the mayor and aldermen or selectmen to make such complaint and application, and they decline so to do, they shall indorse upon the petition the reason of such non-compliance and return it to the petitioners, who may within ten days thereafter present it to the said board; and the board may thereupon proceed to make such examination in the same manner as if called upon by the mayor and aldermen or the selectmen, first giving to the petitioners and to the corporation reasonable notice in writing of the time and place of entering upon the same. If upon such examination it appears to the board that the complaint is well founded, it shall so adjudge, and shall inform the corporation operating such railroad of its adjudication in the same manner as is provided in the preceding section.

SECT. 8. The board shall investigate the causes of any accident on a railroad resulting in the loss of life, and of any accident not so resulting which it may deem to require investigation.

SECT. 9. Every railroad corporation shall at all times, on request, furnish to the board any information required by it concerning the condition, management, and operation of the road of such corporation, and particularly copies of all leases, contracts, agreements for transportation with express companies, or otherwise, to which it is a party, and also with the rates for transporting freight and passengers upon its road and other roads with which its business is connected.

SECT. 10. No request or advice of the board shall impair in any manner the legal duties and obligations of a railroad corporation, or its legal liability for the consequences of its acts or of the neglect or mismanagement of any of its agents or servants.

SECT. 11. The board shall from time to time in each year examine the books and accounts of all corporations operating railroads, to see that they are kept in a uniform manner and upon the system prescribed by the board. Statements of the doings and financial condition of the several corporations shall be published at such times as the board shall deem expedient.

SECT. 12. On the application in writing of a director, or any person or persons owning one fiftieth part of the paid-in capital stock of a corporation operating a railroad, or owning the bonds or other evidences of indebtedness of such corporation equal in amount to one fiftieth part of its paid-in capital stock, the board shall examine the books and the financial condition of said corporation, and shall cause the result of such examination to be published in one or more daily papers in the city of Concord.

SECT. 13. The board shall at all times have access to the list of stockholders of any corporation operating a railroad, and may at any time cause the same to be copied, in whole or in part, for the information of the board or of persons owning stock in such corporation.

SECT. 14. Any railroad corporation refusing to submit its books to the examination of the board, or to keep its accounts in the method prescribed by the board, or which shall neglect or refuse to comply with the lawful directions of the board, shall forfeit for every such refusal a sum not exceeding one thousand dollars.

SECT. 15. Either member of said board, in all cases investigated by it, may summon witnesses in behalf of the State, and may administer oaths and take testimony. The fees of such witnesses for travel and attendance shall be the same as for witnesses before the supreme court, and shall be paid from the treasury of the State, and a certificate of the board thereof shall be filed with the state treasurer; and any justice of the supreme court, either in term time or vacation, upon application of the board, shall compel the attendance of such witnesses and the giving of testimony before the board in the same manner and to the same extent as before said court.

SECT. 16. The board shall prescribe the form for the annual returns required to be made by railroad corporations, and may from time to time make changes and additions in such form, giving to the corporations one year's notice of any such changes or additions as require an alteration in the method or form of keeping their accounts, and shall, on or before the fifteenth day of September in each year, furnish blank forms of such returns; and said corporations shall, on or before the first day of January in each year, make returns to said board, subscribed and sworn to by the president, treasurer, and superintendent of each. When a return is defective, or appears to be erroneous, the board shall notify the corporation to amend the same within fifteen days. The board shall prepare such tables and abstracts as it deems expedient of all the returns, and make an annual report of its doings, including all such statements, facts, and explanations as will disclose the actual working of the system of railroad transportation in its bearing upon the business and prosperity of the State, and such suggestions as to its general railroad policy, or any part thereof, or the condition, affairs, or conduct of any railroad corporation, as may seem to it appropriate, which shall be transmitted to the secretary of state on or before the first Wednesday in June in each year, to be laid before the General Court at its biennial sessions.

SECT. 17. On and after this act takes effect, the board of railroad commissioners established by it shall be the railroad commissioners of the State, and shall be taken for and deemed to be the railroad commissioners named in the laws of the State.

SECT. 18. This act shall take effect upon its passage, and sections 1, 2, 3, and 4 of chapter 157 of the General Laws, and all acts and parts of acts inconsistent with the provisions of this act, are hereby repealed.

[Approved September 14, 1883.]

LAWS OF JUNE SESSION, 1885.

CHAPTER 34.

AN ACT IN AMENDMENT OF SECTION 3 OF CHAPTER 101 OF THE LAWS OF 1883, RELATING TO PROVISIONS FOR PAYMENT OF SALARIES AND EXPENSES OF RAILROAD COMMISSIONERS.

SECTION

1. Time of apportioning expenses, etc., changed.

SECTION

2. Repealing clause; takes effect when.

SECTION 1. That section 3 of chapter 101 of the laws of 1883 be amended by striking out therefrom the words "on or before the first day of July in each year," and by inserting in place thereof the words "each year, at the time they assess the taxes upon the railroads," so that said section after being so amended shall read: "The annual expenses of the board, including the salaries of its members and the expenses of accountant, shall be borne by the several railroad corporations according to their gross receipts, and shall be apportioned by the board of equalization, who each year, at the time they assess the taxes upon the railroads, shall assess upon each of said corporations its just proportion of such expenses in proportion to its said receipts for the year next preceding that in which the assessment is made; and such assessment shall be collected in the manner provided by law for the collection of taxes upon railroad corporations."

SECT. 2. All acts or parts of acts inconsistent with this act are hereby repealed. This act shall take effect upon its passage.

[Approved August 12, 1885.]

CHAPTER 63.

AN ACT TO PROVIDE FOR THE SPEEDY DELIVERY OF FREIGHTS, AND TO REGULATE THE LIABILITY OF RAILROAD CORPORATIONS IN CERTAIN CASES.

SECTION 1. Consignee to remove goods or pay for use of cars.

SECTION 1. That any railroad corporation having transported any lumber, wood, coal, stone, brick, iron, sand, machinery, grain,

or other bulky or heavy freight, which is usually delivered to and unloaded by the consignee from the cars, may, after the arrival of such freight at the place of its destination, provided said goods are in good condition, notify the consignee in writing to receive and remove the same, and after five days from the time of such notice may charge a reasonable sum for the use and detention of the cars containing the same.

[Approved August 25, 1885.]

CHAPTER 96.

AN ACT FOR THE BETTER PROTECTION OF LIFE AND PROPERTY.

SECTION 1. Penalty for illegal carriage and use of explosive compounds.

SECTION 1. No person shall transport or have in his possession for the purpose of transporting in any public conveyance, nor shall any person leave, deposit, or have in his possession in any dwelling-house, shop, or manufactory, dynamite, giant-powder, nitro-glycerine, or any explosive compound of which nitro-glycerine forms a part. Any violation of this act shall be punished by a fine of not more than five hundred dollars nor less than one hundred dollars.

[Approved August 29, 1885.]

CHAPTER 98.

AN ACT RELATING TO RAILROAD CROSSINGS, AND THE DUTIES OF RAILROAD COMMISSIONERS IN CERTAIN CASES.

SECTION

1. Warning signs.
2. Their construction.
3. When not required.
4. Whistling and bell-ringing.
5. Grade crossings.

SECTION

6. Highway crossings.
7. Same subject.
8. Same subject.
9. Repealing clause; takes effect, when.

SECTION 1. Every railroad corporation shall maintain warning signs at every railroad crossing at grade, except as hereinafter provided.

SECT. 2. Such warning signs shall be constructed upon a uniform pattern, to be determined by the railroad commissioners; but warning signs already in existence and legible shall not be required to be of the established pattern, except as they are renewed.

SECT. 3. No warning signs shall be required to be placed at a crossing where gates or a flagman are employed.

SECT. 4. When a locomotive approaches within eighty rods of a crossing over a highway at grade, the whistle shall be sounded by two long and two short whistles, and the bell shall be rung until the locomotive passes the crossing; *provided*, that no whistle need be sounded in cities and villages where upon petition and complaint the board of railroad commissioners shall decide that it is not necessary.

SECT. 5. No railroad shall be constructed across another railroad at grade without the consent in writing of the board of railroad commissioners.

SECT. 6. When a railroad is hereafter laid out across a highway or other way it shall be constructed so as not to unreasonably obstruct the same, and unless the railroad commissioners authorize a crossing at grade, it shall be constructed so as to pass either over or under the highway or other way; and whenever any railroad now existing, or hereafter constructed, crosses any highway or other way at grade, if such highway or other way is so situated that in the ordinary running of trains it is impossible to avoid a detention longer than two minutes, the railroad commissioners, upon petition, after hearing all persons interested therein, may prescribe and establish such regulations and restrictions relating to the time of obstructing such highway or other way, by placing or running engines, cars, or trains thereon, as in their judgment are proper for the protection of the public; *provided*, that in no case shall such obstruction exceed five minutes; and an appeal from all decisions of the board of railroad commissioners under this act shall be had to the supreme court of the State.

SECT. 7. A railroad corporation may raise or lower a highway or other way for the purpose of having its road pass over or under the same; but before proceeding to bridge or excavate for the purpose of crossing the same, the railroad commissioners shall be notified, and the board shall give opportunity for any parties to appear and

be heard before giving its written consent to the proposed change in the manner of crossing.

SECT. 8. A railroad corporation may alter the course of a highway or other way for the purpose of facilitating the crossing of the same by its road, or of permitting its road to pass at the side thereof without crossing, upon obtaining the written consent of the railroad commissioners; but such consent shall not be given until all parties in interest shall have been duly notified and heard.

SECT. 9. All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

[Approved August 29, 1885.]

LAWS OF JUNE SESSION, 1887.

CHAPTER 95.

AN ACT TO REGULATE THE HEATING OF PASSENGER CARS IN THE STATE OF NEW HAMPSHIRE.

SECTION

1. Heating railway cars regulated.
2. Penalty.

SECTION

3. Takes effect, when.

SECTION 1. No passenger, mail, or baggage car on any railroad in this State shall be heated by any method of heating or by any furnace or heater unless such method or the use of such furnace or heater shall first have been approved in writing by the board of railroad commissioners; *provided, however*, that in no event shall a common stove be allowed in any such car; *provided, also*, that any railroad corporation may, with the permission of said board, make such experiments in heating their passenger cars as said board may deem proper; *provided, also*, that the provisions of this act shall not apply to mixed trains or trains which consist of freight and passenger cars.

SECT. 2. Any railroad corporation violating any of the provisions of the preceding section shall forfeit a sum not exceeding five hundred dollars.

SECT. 3. This act shall take effect January 1, 1889.

[Approved October 28, 1887.]

CHAPTER 102.

AN ACT TO DEFINE AND PUNISH THE MISUSE OF RAILROAD EARNINGS TO INFLUENCE LEGISLATION.

SECTION

1. Penalty for such misuse.
2. Who may be employed; expenses.

SECTION

3. Takes effect, when.

SECTION 1. Railroads being public trusts, any officer, stockholder, or agent of any railroad corporation in this State, or of any railroad outside the State operating any railroad in this State, who shall use any of the income, funds, or property of the corporation of which he is an officer, stockholder, or agent, to secure or oppose legislation, except as hereinafter provided, shall be deemed guilty of a misdemeanor, and be liable to punishment by a fine not exceeding one thousand dollars or by imprisonment in the state prison for a term not exceeding one year, or by fine and imprisonment in the discretion of the court.

SECT. 2. Any railroad corporation having business before the Legislature may employ counsel not exceeding three in any cause, and may be represented by any citizen and by its own officers and agents as actual witnesses and experts only, the expense of which shall appear as a distinct item in the annual returns of every railroad under the item of "Legislative Expense," as required to be made to and published by the railroad commissioners.

SECT. 3. This act shall take effect from and after January 1, 1888.

[Approved November 4, 1887.]

LEASES AND CONTRACTS.

LEASE

OF THE ASHUELOT RAILROAD TO CONNECTICUT RIVER RAILROAD.

Whereas, on the 17th day of April, one thousand eight hundred and seventy-seven, the Ashuelot Railroad Company, a corporation duly established under the laws of the State of New Hampshire, and the Connecticut River Railroad Company, a corporation duly established under the laws of the State of Massachusetts, entered into an agreement by which the said Connecticut River Railroad Company was to take possession of the said Ashuelot Railroad, extending from South Vernon, in the State of Vermont, to Keene, in the State of New Hampshire, and other property belonging to said Ashuelot Railroad Company, in said contract fully set forth, and was to operate said railroad as the agent, servant, and employé of said company, for the period of ninety-nine years from the said 17th day of April, 1877;

And, whereas, in said agreement it was "further mutually agreed that when the laws of the State of New Hampshire shall allow the party of the first part to execute a lease of said Ashuelot Railroad, and property included in said contract, to the party of the second part, and the said party of the second part shall be enabled to assume all the liabilities and obligations, and to perform all the duties, matters, and things of a public nature contained in said agreement, as principal rather than agent, servant, or employé of the party of the first part, such lease shall at once be made and executed accordingly, in proper form, for the term of ninety-nine (99) years from the date of said contract, to the party of the second part, its successors and assigns," which said contract was duly ratified and confirmed at meetings of the stockholders of the said Ashuelot Railroad Company, and of the Connecticut River Railroad Company, legally called for that purpose, and full authority was given to the directors of said Connecticut River Railroad Company, from time to time, to carry into effect the provisions of said contract;

And, whereas, by the statutes of the State of New Hampshire authority has been conferred upon the said Ashuelot Railroad Company to lease its railroad and other property to said Connecticut River Railroad Company, and by the statutes of the State of Massachusetts the Connecticut River Railroad Company is authorized to make such lease;

Now, therefore, this indenture, made this 10th day of May, A. D. 1887, by and between the Ashuelot Railroad Company, a corporation duly established by the laws of the State of New Hampshire, and having a place of business in Keene, in the county of Cheshire in said State, of the first part, and the Connecticut River Railroad Company, a corporation established by the laws of the State of Massachusetts, and having its place of business in Springfield in said State, of the second part;

Witnesseth, that for the considerations and agreements hereinafter set forth by and between said parties, the said Ashuelot Railroad Company has demised, leased, and let unto the Connecticut River Railroad Company, and its assigns, for the period of ninety-nine years from the 17th day of April, A. D. 1877 (subject, however, to be terminated as hereinafter provided), the Ashuelot Railroad, from South Vernon, in the State of Vermont, to Keene, in the State of New Hampshire, together with all of its turnouts, side and other tracks, depots and depot grounds, and all other buildings, fixtures, property, and estate appertaining thereto, and all rights and easements belonging to said Ashuelot Railroad Company, including the Twitchell estate in said Keene, and the grounds for extending its tracks in said Keene across Main street to said Twitchell place, and all lands, property, and rights which it has acquired by purchase or exchange of lands, or otherwise has become entitled to possess since the 17th day of April, 1877, together with all improvements which the party of the first part has made or is hereafter to make to said property according to the terms of this agreement.

The said party of the first part has, in pursuance of its agreement with the Connecticut River Railroad Company, dated April 17, A. D. 1877, laid tracks across Main street, in said Keene, to said Twitchell place, and has built upon said Twitchell place a freight-house, an engine-house, a turn-table, and has laid upon said place certain tracks for the benefit of said Ashuelot Railroad. The said party of the first part further agrees that it will lay all tracks on its said land and location which may be required in operating and using the road to advantage, and in crossing Main street to the Twitchell place, and will construct and erect at convenient places to accommodate the business, a suitable passenger and freight depot, and such other buildings and structures as may be required to accommodate the business of said road, and such additional main tracks and side-tracks and depots along the line of said road as any increase of the business of the said road may require.

And the party of the second part agrees to pay to the party of the first part, for all constructions, erections, and improvements made by it as aforesaid, six per centum (6 per ct.) per annum on the first day of January of each and every year during the continuance of this lease.

Provided, however, that the party of the second part may hereafter, if it so elects, make any and all such erections, constructions, and improvements at its own expense; and in that case the party of the first part shall pay the party of the second part the value thereof on the expiration of this lease.

And the party of the second part covenants and agrees with the party of the first part that it will lease, operate, and maintain in repair the said Ashuelot Railroad, its depots, bridges, buildings, and property of every kind, from South Vernon to Keene aforesaid, during the continuance of this lease; that it will furnish and provide all the necessary rolling-stock equipment, and all other means for successfully operating said railroad; and will run not less than two trains a day each way, with the passenger accommodations in a manner to accommodate, as well as may be fairly done, in connection with other roads, all kinds of public business, freight and travel, and will furnish the public as good facilities in all its departments of business as have heretofore been provided and enjoyed, and will at all times make all reasonable efforts to accommodate and increase the business of said road. That it will charge itself as freight on wood and ties hauled and taken over the Ashuelot Railroad, for the use of the party of the second part, for purposes independent of the Ashuelot Railroad, as follows: Five (5) cents per mile or fractional part thereof for each cord of wood, and one fifth (1-5) of one cent per mile or fractional part thereof for each tie so hauled.

That it will divide *pro rata* the receipts on the joint business of the two roads according to the distance carried on each road.

That it will at all times keep said railroad and all its buildings and fixtures, and all things appertaining to the same, in as good order and condition as they were when received by said Connecticut River Railroad Company under the contract between said parties hereinafter referred to, and dated April 17, A. D. 1877 (fire and other unavoidable casualties excepted, as herein-after provided), and that it will, at the expiration or termination of this lease, surrender said road and all its property, fixtures, and estate of every kind aforesaid, to the party of the first part, in as good condition as when received under said contract, except as aforesaid.

The party of the second part further agrees that it will carefully and promptly do and perform every act and thing that may be by law required of the party of the first part, in respect to the operating, maintenance, and use of said railroad, including the preparing and making up in proper form all accounts and reports which shall be required by law, and will furnish the same to the party of the first part, with the means of verifying the same, when the approval or signature of the party of the first part, of its officers, shall be required to any such papers or reports.

That it will do and perform all such acts, matters, and things as may legally be required as lessee, as aforesaid, to be done for the security and protection of all the rights and interest of the party of the first part to its property hereinbefore named and described.

That it will keep accurate books of account at its general office of all the gross earnings and income of every description of the Ashuelot Railroad, and also of all expenses and outlays of every kind which the party of the second part may at any time make, and for which it shall claim to be entitled to any compensation or re-imbursement from the party of the first part; which two classes of accounts shall be kept separate from each other, but all of which, kept as aforesaid, shall be open at all reasonable times to the inspection and examination of the directors of the party of the first part, or any agent by them appointed for that purpose, with full right to take copies of the same, or such part as may be desired.

And the party of the second part further agrees to pay to the party of the first part twelve thousand six hundred and fifty dollars (\$12,650) a year, in quarterly payments of three thousand one hundred and sixty-two and fifty-one-hundredths (\$3,162.50) dollars each, on the first day of April, July, October, and January, when the gross earnings and income of said railroad property do not exceed forty thousand dollars (\$40,000).

Whenever the gross earnings and income shall exceed forty thousand dollars (\$40,000) in a calendar year, the party of the second part also agrees to pay to the party of the first part thirty per centum (30 per ct.) of such excess in the following manner: On the first day of February following, they will pay all or so much of said thirty per centum (30 per ct.) as shall be required to refund to the party of the first part all the taxes, in excess of six hundred and fifty dollars (\$650), assessed on said railroad property in the preceding year, and legally collectible from said Ashuelot Railroad Company, and the residue of said thirty per centum (30 per ct.), if any, shall remain in the possession of the party of the second part, and, with its annual interest, be used to accumulate and maintain a contingent fund to be kept and used in whole or in part, from time to time, for the purpose hereinafter stated, it being understood and agreed that interest at the rate of six per centum (6 per ct.) per annum shall be allowed on said contingent fund, and whenever said fund exceeds ten thousand dollars (\$10,000) such excess shall be paid to the party of the first part on the second day of February thereafter. At the expiration or termination of this lease, the party of the second part shall also pay to the party of the first part all the funds in their hands belonging to said party of the first part.

The remainder of all the earnings and income of said railroad and property shall be retained by the party of the second part for its own use and benefit, in compensation and satisfaction for all its services, expenses, liabilities, and outlays of every kind contained in this lease, except as is otherwise specially provided.

Said party of the second part also agrees that it will at all times and at its own expense keep all bridges and buildings on the property herein described insured for an amount as near their value as may be, and in case of their injury or destruction by fire will apply the amount recovered from such insurance to repairing or replacing the same; *provided, however*, that in case of partial injury to the buildings, bridges, abutments, or culverts of the property herein described, to the amount of one hundred dollars (\$100), or more, by wind, flood, or fire, or the total destruction of them, or either of them, by the same cause, and in either case without any fault or negligence of the party of the second part, then said party of the second part shall proceed to repair or replace the same, and the party of the first part hereby agrees to pay the actual cost of such repairs, less insurance recovered from fire losses, and the difference in value between the old and new structure, as fast as any such loss can be liquidated out of the contingent fund to be provided and maintained as aforesaid.

Annual interest at the rate of six per centum (6 per ct.) per annum to be charged from the date of expenditure till the same is paid as aforesaid.

And inasmuch as difference of opinion may hereafter arise between the parties as to the comparative condition of the railroad and property when received by the Connecticut River Railroad Company under the contract of April 17, 1877, and some future time covered by this agreement, and, whereas, questions may arise between the parties as to the lawful and proper construction of this instrument and the things to be done, or omitted to be done, by its terms, it is mutually agreed that either party may demand that said difference shall be submitted to referees, and the other party shall acquiesce, and thereupon, if the parties cannot agree upon the referees, application for this appointment may be made to a judge of the supreme court of the State of New Hampshire, or to a judge of the supreme court of the State of Massachusetts, and due notice of such application having been given, said court may appoint three referees to whom the matter or difference shall be submitted, and the written award of either two shall be final and conclusive on the parties.

And the said party of the second part further agrees that it will carry free of charge, whenever it can lawfully do so, over said Ashuelot Railroad, and over its own road on business of the Ashuelot Railroad, the directors of the party of the first part, for the time being, not exceeding five, whose names shall be furnished by the party of the first part.

That it will indemnify and save harmless the party of the first part from all loss, costs, and suits, and damages of every kind, which may be made, claimed, or sustained by any party, by reason of the operating, using, and managing said railroad or the business thereof, or for want of due care in performing all duties required of it to perform, according to the terms and provisions hereof.

The party of the first part further agrees that it will maintain its organization as a corporation during the period of this lease, that it will do and perform all things that may be required of it by the laws of the State of New Hampshire, and that it will save the party of the second part harmless from all loss, costs, and damages by reason of any act or default of its part by which its organization is impaired, or its franchise lost or weakened.

This lease shall be in force for and during the period of ninety-nine (99) years from the 17th day of April, 1877, unless it shall be sooner terminated by

mutual agreement; *provided, however*, it may be terminated at any time by either party giving one year's notice of its desire to terminate this lease, and paying or tendering to the other party one hundred thousand dollars (\$100,000) to that end, and complying with the conditions hereinbefore set forth.

In testimony whereof the said Ashuelot Railroad Company by its president, A. B. Harris, duly authorized therefor, and the Connecticut River Railroad Company by its president, duly authorized, having signed this lease, and affixed the corporate seal of the said corporations respectively, on the day and year first above written.

[Seal.]

ASHUELOT RAILROAD COMPANY,

By A. B. HARRIS, *President*.

Witness:

E. F. LANE.

J. MULLIGAN.

[Seal.]

CONNECTICUT RIVER RAILROAD COMPANY,

By N. A. LEONARD, *President*.

Witness:

GEORGE E. FRINK.

F. E. DEMOND.

LEASE.

ATLANTIC & ST. LAWRENCE RAILROAD TO TRUSTEES FOR THE GRAND TRUNK RAILWAY COMPANY OF CANADA.

Whereas, the Atlantic & St. Lawrence Railroad Company, a corporation established by the Legislature of the State of Maine, and the Grand Trunk Railway Company of Canada, a corporation established by the Legislature of the province of Canada, have negotiated respecting the leasing of the railroad of the said Atlantic & St. Lawrence Railroad Company to the said Grand Trunk Railway Company, under the authority granted by an act of the Legislature of Maine, passed on the twenty-ninth day of March in the year of our Lord one thousand eight hundred and fifty-three, entitled, "An act to authorize a lease of the Atlantic & St. Lawrence Railroad," and the said companies have preliminarily agreed, the said Atlantic & St. Lawrence Railroad Company to grant, and the said Grand Trunk Railway Company to accept, a lease of said railroad and its appurtenances, in substance upon the terms, agreements, covenants, and conditions hereinafter, in this instrument, recited and set forth, but the said Grand Trunk Railway Company has not now the legal competency to enter into and execute such lease, for want of the requisite legislative authority therefor, and the Hon. John Ross, of Belleville, in the province of Canada, Benjamin Holmes, Esq., of Montreal, in the said province, and William Jackson, Esq., of Birkenhead, England, stockholders in said Grand Trunk Railway Company, in furtherance of the objects of said companies, and to promote the ultimate and definitive execution of their preliminary agreement as aforesaid, have undertaken, as hereinafter recited, to enter into and accept a lease of said railroad and appurtenances for the purpose of holding the same in behalf of said Grand Trunk Railway Company pending and until the procurement of the requisite legislative authority to enable said company definitively to execute and complete said preliminary agreement, and in its own behalf to enter into, execute, and accept a lease as aforesaid, and with the intent that as soon as such authority shall be procured, they, the said Ross, Holmes, and Jackson, shall assign and transfer

all their right, title, and interest in said railroad and appurtenances, to the said Grand Trunk Railway Company;

And, whereas, the said Atlantic & St. Lawrence Railroad Company, by the act of the Legislature of Maine aforesaid, was authorized at any time within two years from the passage of said act to enter into and execute such a lease of the railroad of said company, or contract in the nature of a lease, as would enable the lessees thereof to maintain and operate by means of said railroad, and other roads in extension of the same, a connected line of railroads from the Atlantic Ocean, at Portland, to the city of Montreal, in the province of Canada, and thence to the western part of said province;

And, whereas, the stockholders of the said Atlantic & St. Lawrence Railroad Company, at a legal meeting held on the tenth day of June in the year of our Lord one thousand eight hundred and fifty-three, by their vote authorized the directors of said company to enter into such a lease, or contract in the nature of a lease, as is contemplated and described in the act aforesaid;

Now, this indenture, made this fifth day of August, in the year aforesaid, between the said Atlantic & St. Lawrence Railroad Company on the one part, and the Hon. John Ross, Benjamin Holmes, and William Jackson, Esquires, aforesaid, on the other part, witnesseth, that in consideration of the premises, and of the rents, covenants, and agreements hereinafter reserved and contained, by and on the part of them, the said Ross, Holmes, and Jackson, to be paid, done, and performed, the said Atlantic & St. Lawrence Railroad Company doth hereby demise and lease to them, the said Ross, Holmes, and Jackson, the railroad of the said Atlantic & St. Lawrence Railroad Company, as now chartered, located, and constructed, commencing at the city of Portland, in the State of Maine, extending thence to the boundary line of the State of New Hampshire, and thence continuing through the State of New Hampshire to and into the State of Vermont, as far as the Common Junction at Island Pond, in the county of Essex, in said State of Vermont, together with all the property and estate, real, personal, and mixed, wheresoever the same may be situated, belonging to said Atlantic & St. Lawrence Railroad Company, appurtenant to and designed for the purposes of maintaining and operating said railroad; including all the stations, warehouses, and other buildings, bridges, piers, wharves, shore rights, water rights, and harbor privileges belonging to, vested in, or possessed by said Atlantic & St. Lawrence Railroad Company, and all the rights of way and other easements, rights to acquire easements, the road-bed, superstructure, equipment, apparatus, implements, rails, and other materials and stores which the said company possesses, claims, holds, occupies, and enjoys for the objects of its incorporation, under the charter thereof, according to the schedule of said property and estate hereinafter named and marked "schedule of property," also all the tolls, rates, fares, rents, and income which the said company is now or may hereafter be entitled to receive and take, and all its right to demand, collect, and receive the same, and all the claims of every nature, credits, choses in action, causes of action, appeals and rights of appeal, which shall belong to and be held by said company at the commencement of and during the term herein defined and limited;

To have and to hold the said railroad, property, estate, rights, and privileges, and all and singular the premises hereby demised, with the appurtenances thereof, to them, the said Ross, Holmes, and Jackson, and the survivors and survivor of them, in trust, until assignment thereof as hereinafter provided, and to their said assigns herein designated, for and during the full term of nine hundred and ninety-nine years from the first day of July in the year of our Lord one thousand eight hundred and fifty-three;

Subject to the provisions of all the special acts of the Legislatures of the States of Maine, New Hampshire, and Vermont respectively, creating, limit-

ing, defining, or restraining the rights, privileges, powers, and duties of the said Atlantic & St. Lawrence Railroad Company, and to all the provisions of the general laws of said States now in force, and which may hereafter be enacted affecting the said company;

Subject also to the provisions of any and all mortgages, grants, leases, and conveyances of whatever nature, heretofore executed by said company, of its said railroad, property, estate, privileges, and rights, or any part thereof, and to all liens and incumbrances now lawfully existing on the same;

Reserving hereupon a yearly rent, payable by the said lessees and assigns to the said Atlantic & St. Lawrence Railroad Company, of the sum of one hundred and eight thousand nine hundred dollars, being at the rate of six dollars in the hundred by the year upon the aggregate amount of eighteen thousand one hundred and fifty shares in the capital stock of said Atlantic & St. Lawrence Railroad Company at the par value thereof, being all the shares now lawfully issued, and entitled by virtue of existing contracts to be issued, of the said capital stock, except certain collateral shares hereinafter mentioned, to be paid in equal half-yearly payments at said Portland, on the thirty-first day of December and thirtieth day of June in every year for and during the term of this lease.

This lease is made and accepted upon the following further terms, covenants, and agreements — that is to say:

First. The said lessees are to maintain and operate, and hereby jointly and severally covenant for themselves and the survivors and survivor of them that they will maintain, operate, use, and employ the railroad, property, estate, rights, and privileges hereby demised, in furtherance of the objects contemplated by the charter of the said Atlantic & St. Lawrence Railroad Company, in the several States within which the same is located and constructed, and in pursuance of all the general and special laws of the States aforesaid affecting the same, and in such manner as to promote the best public convenience and advantage under said charter and laws during the term of this lease.

Second. The said lessees further covenant, as aforesaid, that they will at all times during the term of this lease maintain and keep the said railroad, buildings, superstructure, equipment, and other property hereby demised and enumerated in the schedule of property aforesaid, and such as may be substituted in pursuance of this indenture in place of the same, in good and substantial repair and condition, and will from time to time make such alterations, improvements, and enlargements of said railroad and its appurtenances, and such additions to and renewals of its buildings, equipment, apparatus, and other movable property of every kind as shall be necessary for the most safe, convenient, and regular transportation, to the largest practicable amount, of passengers, goods, and mails, upon all and every part of the line, and from all the several stations of said railroad, so as to accomplish most effectually the public objects contemplated by the charter of said Atlantic & St. Lawrence Railroad Company, and by the laws of the several States aforesaid affecting the same, and to promote and sustain most beneficially all the possible reversionary interests of the said Atlantic & St. Lawrence Railroad Company.

Third. The said lessees are hereby authorized to sell or otherwise dispose of, alter, amend, and repair any of the buildings, rails, equipment, apparatus, or other movable property hereby demised and enumerated in the schedule of property aforesaid, or which may at any time be used or employed in or about said railroad, or be appurtenant thereto, so, however, that in all such cases, and the said lessees hereby covenant as aforesaid, that, in all such cases, there shall be substituted in place of that which is sold or otherwise disposed of, altered, amended, or repaired, other property of the like kind,

and equally good or better for the like purposes — and the said lessees are hereby further authorized to cause to be made or constructed any new buildings, tracks, rails, apparatus, equipment, or other movable property necessary and beneficial to be used for the purposes of said railroad, and to make any and all improvements, alterations and repairs, renewals and enlargements of said railroad which may be necessary for the greatest efficiency and use of the same, but not so as to divert the same from its present location, nor to impair the most convenient public use of the same.

Fourth. The said lessees further covenant, as aforesaid, that they will duly pay the rent herein reserved, at the times and in the manner herein provided, without demand of the same, and will duly pay all taxes which may lawfully be assessed in any jurisdiction, and for any purpose, upon any and all the corporate property, rights, estate, and franchise of the said Atlantic & St. Lawrence Railroad Company.

Fifth. The said lessees further covenant, as aforesaid, that they will assume, provide for, satisfy, and fully discharge all the debts, liabilities, and obligations of the said Atlantic & St. Lawrence Railroad Company, which are over and above the funded debt hereinafter mentioned, and which are enumerated in the schedule thereof hereinafter named, and marked "schedule of debts," and all the debts, liabilities, and obligations, if any, which may hereafter during the term of this lease by implication of law arise against and be due from said company, and will fully and forever guarantee, indemnify, save, and hold harmless the Atlantic & St. Lawrence Railroad Company, and the stockholders thereof, against all liability for principal or interest on account of any mortgage bonds heretofore issued by said company, and on account of any bonds, mortgages, obligations, or assurances heretofore given by said company to the city of Portland, to secure the said city for the loan of its credit to said company.

Sixth. The said lessees further covenant, as aforesaid, that they will forever guarantee, indemnify, save, and hold harmless the said company against all liability for payment of principal or interest of the certificates of loan heretofore issued by said city to said Atlantic & St. Lawrence Railroad Company in aid of the construction of said railroad, and against all costs and expenses arising from any suit or legal proceeding instituted by any holder of such certificates, and will undertake and perform all the duties and assume all the liabilities imposed upon the said Atlantic & St. Lawrence Railroad Company by the several acts of the Legislature of Maine, authorizing the said city to issue the certificates aforesaid, and will duly provide for and make all such contributions and payments as the said Atlantic & St. Lawrence Railroad Company is by law required to make to the several sinking funds, created and established by acts of the Legislature of Maine for the reimbursement of the loans, or any part of the loans, so made by the city of Portland.

Seventh. The said lessees further covenant, as aforesaid, that they will, from and after the execution of this indenture, assume the defence of all suits, actions, complaints, and prosecutions which may then be pending, or which may thereafter be brought against the said Atlantic & St. Lawrence Railroad Company, or any of its officers, servants, or agents, for anything by them done under authority and in behalf of said company, and will indemnify and save harmless the said company, and the stockholders thereof, against all costs and expenses incurred in such defence, and against any and all judgments which may be recovered in such suits, actions, and prosecutions, and will indemnify, save, and hold harmless the said Atlantic & St. Lawrence Railroad Company, and the stockholders thereof, against all claims, actions, damage, and liability on account of anything which may be done or omitted by the said lessees, or any of them, while exercising, or assuming to exercise,

any of their powers and rights under this indenture, and on account of any and all acts, omissions, or neglects of any kind, in any manner done or suffered by the said lessees, or any of their servants or agents.

Eighth. The said lessees further covenant, as aforesaid, that they will, on or before the expiration of every year during the term of this lease, pay to the said Atlantic & St. Lawrence Railroad Company the sum of five hundred dollars for all such necessary expenses as the company may incur within the year aforesaid, for the compensation of such officers as may be required in maintaining the organization of said company, for incidental charges attending the holding of its corporate meetings, and for all necessary proceedings in maintaining and preserving its corporate powers.

Ninth. The said lessees further covenant, as aforesaid, that they will never underlet nor assign this lease, or any part of their term therein, except by assignment to said Grand Trunk Railroad Company, as hereinafter provided, and that they will at all times do, observe, and perform whatever may be lawfully and reasonably required on their part to be done, observed, and performed, to uphold, protect, and maintain the franchise, rights, and interests of said Atlantic & St. Lawrence Railroad Company, and that they will not do, nor voluntarily suffer anything to be done, which shall lead or tend to a forfeiture of the franchise of said Atlantic & St. Lawrence Railroad Company, or in any manner impair the value of the same.

Tenth. And, whereas, the said Atlantic & St. Lawrence Railroad Company, and the St. Lawrence & Atlantic Railroad Company, a corporation established by the Legislature of the province of Canada, and designed to effect, through the connection of the respective railroads of said companies, a communication between the city of Portland and the city of Montreal, by a certain instrument or fundamental articles of mutual agreement entered into by them on the seventeenth day of April in the year of our Lord one thousand eight hundred and forty-six, established certain mutual regulations, providing, amongst other things, for the mode and terms of transacting the joint business upon said railroads, and for the government of said companies in relation thereto, and the said St. Lawrence & Atlantic Railroad Company has since that time been consolidated into and become a part of the said Grand Trunk Railroad Company;

Now the said lessees further covenant, as aforesaid, that they will at all times faithfully observe and do whatever remains executory, subsisting, and unperformed of the agreements and regulations so entered into and adopted by the said St. Lawrence & Atlantic Railroad Company, and consistent with the relations of the parties to this lease, and that in the event of a surrender or forfeiture of this lease the said Grand Trunk Railway Company shall and will, nevertheless, assume, perform, and continue to perform and observe all the agreements and regulations so entered into and adopted by the said St. Lawrence & Atlantic Railroad Company, and then remaining executory, subsisting, and unperformed.

Eleventh. If the said lessees shall at any time fail to pay the rent herein reserved, as the same shall become payable, and shall suffer the same to be in arrears for more than sixty days from and after the time the same became payable, they shall, upon such failure and suffering the said rent to be in arrears, be liable, without any demand or notice by the said Atlantic & St. Lawrence Railroad Company, to suffer the forfeiture of this lease, as hereinafter provided.

If the said lessees shall, at any time, fail to pay the interest which shall become due and payable upon any of the certificates of loan issued by the city of Portland, as hereinbefore mentioned, or shall neglect or omit to pay the principal of any of said certificates for more than six months after the

maturity thereof, they shall, upon such failure, or such neglect and omission, be liable, without any demand or notice by the said Atlantic & St. Lawrence Railroad Company, or any person or corporation interested therein, to suffer the forfeiture of this lease, as hereinafter provided.

If the said lessees shall at any time fail to pay the interest which shall become due and payable upon any of the mortgage bonds heretofore issued by the said Atlantic & St. Lawrence Railroad Company, or shall neglect or omit to pay the principal of any said mortgage bonds for more than six months after the maturity thereof, the said lessees shall, upon such failure, or such neglect and omission, be liable, without any demand or notice by the said Atlantic & St. Lawrence Railroad Company, or any holder of said mortgage bonds, to suffer the forfeiture of this lease, as hereinafter provided.

But these stipulations and agreements for forfeiture, so far as relate to the certificates of loan aforesaid, issued by the city of Portland, and to the mortgage bonds aforesaid, are to be understood and taken as subject to the provision that if said lessees shall duly provide the requisite funds for the payment of the principal and interest which shall become due and payable at any time upon the certificates of loan and mortgage bonds aforesaid, and shall deposit such funds with some suitable depository, at the times and places when and where such principal or interest shall be payable, according to the tenor of the certificates and bonds aforesaid, payable on demand to the holders thereof, and shall give reasonable public notice of such deposit, then the said lessees shall not be accountable for, nor liable to suffer any forfeiture by reason of any delay on the part of the holders of such certificates and bonds to demand and accept payment of the principal or interest due thereon, but shall, nevertheless, be and remain liable at all events for the fidelity of the depository with whom such funds shall be deposited, and for the security and proper application of the same.

If the said lessees shall fail to pay and discharge the debts, liabilities, and obligations of the said Atlantic & St. Lawrence Railroad Company which are over and above the funded debt hereinafter mentioned, and which are enumerated in the schedule of debts hereinafter named, and shall suffer such debts, liabilities, and obligations to be in arrears and unpaid to an amount equal to twenty-five thousand dollars, for more than ninety days after the maturity of that amount in the aggregate, and after notice of such arrears given by authority of the directors of said Atlantic & St. Lawrence Railroad Company to the said lessee, or any of them, or to any officer of said Grand Trunk Railway Company, at the principal office of said company in Canada, the said lessee shall, upon such failure and suffering such arrears to remain for the time aforesaid, be liable to suffer the forfeiture of this lease as hereinafter provided.

Twelfth. In the event of any failure, neglect, and omission by the said lessees, or the survivors or survivor of them, or their assigns, hereinafter designated, to make the payments provided for and specified in the eleventh article hereof, as therein required, and which failure, neglect, omission, and the suffering of such payments to be in arrears, it is therein declared shall render the said lessees liable to suffer the forfeiture of this lease, the said Atlantic & St. Lawrence Railroad Company, into and upon all the said railroad, property, and estate hereby demised, and into and upon all the improvements thereof and property substituted therefor, or into and upon any part thereof in the name of the whole, shall have the right immediately, or at any time thereafter, without other notice or demand than is hereinbefore provided, to re-enter and take and hold possession of the same, and use and operate the same, and take the income and profits thereof, and the said lessees and all their servants and agents to dispossess and remove; and may

at the time of such re-entry, or at any time thereafter, give written notice to the said lessees, or any of them, or to the said Grand Trunk Railway Company, that it holds the said railroad, property, estate, and improvements for the purpose of effecting the determination of this lease and enforcing the forfeiture thereof, for the specified breach or breaches of covenant for which such entry was made; which written notice shall be sufficient if delivered by authority of the directors of said Atlantic & St. Lawrence Railroad Company to any one of said lessees, or to any officer of the said Grand Trunk Railroad Company, at the principal office of said company in Canada, or in case of inability to deliver notice as aforesaid, by publishing such notice for two weeks in some public journal in the city of Montreal. If the said lessees shall not, within eighteen months after the delivery of notice or the last publication thereof as aforesaid, repair, supply, and make good all the deficiency and breach of covenant for which such entry was made, with interest for the time of such deficiency upon the sum or sums unpaid and in arrears, all the estate, rights, and interests of the said lessees shall be absolutely determined and forfeited, and the said Atlantic & St. Lawrence Railroad Company shall have and hold all the said railroad, property, and estate demised, and all the improvements thereof and property substituted therefor, and all the income thereof, as in and of its former estate and to its own use, without liability to account to said lessees for any of said property, estate, improvements, substitutions, or income, or to refund or re-imburse to said lessees any sum by them before that time advanced, paid, or applied in fulfillment or part fulfillment of any of the covenants and agreements herein expressed. But if the said lessees and the survivors and survivor of them and their assigns hereinafter designated shall at any time after such entry for breach of covenant, and before the expiration of eighteen months aforesaid from the delivery or publication of notice aforesaid, repair, supply, and make good all the deficiency and breach of covenant for which such entry was made, with interest as aforesaid, then the said lessees and the survivors and survivor of them and their assigns aforesaid shall be restored to the possession, use, and enjoyment of all the demised premises, and the improvements thereof and property substituted therefor, as fully and amply, and to all intents and purposes, as if no such deficiency and breach of covenant had occurred, and the said Atlantic & St. Lawrence Railroad Company shall restore, and hereby covenants that it will restore and yield possession as aforesaid, and will account for and pay to the said lessees and the survivors and survivor of them and their assigns aforesaid, all the net profits and income received by the said Atlantic & St. Lawrence Railroad Company by virtue of its entry and possession aforesaid.

Thirteenth. The said Atlantic & St. Lawrence Railroad Company on its part hereby covenants that it shall and may be lawful to and for the said lessees and the survivors and survivor of them and their assigns aforesaid, paying the rent herein reserved, and providing for and making all the other payments required and provided for in the eleventh article hereof, peaceably and quietly to have, hold, use, occupy, and enjoy all and singular the premises hereby demised, with the appurtenances, for and during the said term of nine hundred and ninety-nine years hereby demised, without any molestation whatsoever of or by the said Atlantic & St. Lawrence Railroad Company or assigns, or any person or persons lawfully or equitably claiming or to claim by, from, or under said company.

Fourteenth. The said Atlantic & St. Lawrence Railroad Company further covenants that it will, during the term hereby demised, uphold and maintain the lawful organization of said company, and will do all things on its part required to be done to uphold and save inviolate the charter and franchise thereof; and will, from time to time, elect and appoint all such officers,

agents, and servants as it may by law be required to elect and appoint for the purpose of so maintaining its organization charter and franchise, and will invest them with such powers and duties as may be necessary to secure and maintain the corporate efficiency of said company according to law.

Fifteenth. The said Atlantic & St. Lawrence Railroad Company further covenants that after the execution of this lease and until the determination thereof it will not, without or beyond the request and consent of the said lessees, issue any further shares in the capital stock of the said Atlantic & St. Lawrence Railroad Company beyond the number of shares now lawfully issued, or entitled by virtue of existing contracts to be issued, as hereinbefore mentioned, and will not after the execution of this lease and until the determination thereof, without or beyond the consent of the said lessees, create any new debt against said Atlantic & St. Lawrence Railroad Company, nor issue or deliver any previously executed evidence of debt for which the said company shall not have received value at the date of the execution of this lease, nor voluntarily do any act whereby any obligation or indebtedness shall result against said company; but may, nevertheless, execute and deliver any new evidence of debt for indebtedness now existing, or in liquidation of subsisting contracts.

Sixteenth. The said Atlantic & St. Lawrence Railroad Company further covenants that the said lessees shall be entitled to and shall have all the benefit and advantage secured by law to the said Atlantic & St. Lawrence Railroad Company, arising or to arise from the establishment and operation of the several sinking funds created, as hereinbefore mentioned, for the redemption and re-imbursement of the certificates of loan heretofore issued by the city of Portland as aforesaid, and shall be entitled to use and enjoy all the remedies which the said Atlantic & St. Lawrence Railroad Company has, or may have, to secure the proper custody and management of said funds, and to use the name of the said Atlantic & St. Lawrence Railroad Company whenever necessary for the enforcement of such remedies.

Seventeenth. The said Atlantic & St. Lawrence Railroad Company further covenants that it will on its part observe and keep all the agreements and regulations established and adopted in and by the fundamental articles hereinbefore mentioned, entered into between the said company and the Atlantic & St. Lawrence Railroad Company under date of April 17, 1846, and now remaining executory, subsisting, and unperformed.

Eighteenth. In further consideration of the premises, the said Atlantic & St. Lawrence Railroad Company hereby assigns to the said lessees all the contracts, bonds, notes, accounts, choses in action, claims, actions and causes of action, judgments, appeals and rights of appeal, which the said Atlantic & St. Lawrence Railroad Company now possesses, or to which it is entitled, and hereby constitutes the said lessees and the survivors and survivor of them its attorney irrevocable, until the determination of this lease, with authority to appoint the said Grand Trunk Railway Company their substitute, and with power in the name of said assignor, but to the use and at the cost of the assignees, to demand, sue for, prosecute, enforce, satisfy, recover, and enjoy all the contracts and other things hereby assigned, and in like manner in the name of the said Atlantic & St. Lawrence Railroad Company, but at the cost and to the use of the said assignees, to prosecute all causes of action which may hereafter during the term of this lease accrue to the said Atlantic & St. Lawrence Railroad Company, against any person or corporation other than the said lessees, and any person or corporation claiming or acting by or under their authority, or authority from them derived.

Nineteenth. The said Atlantic & St. Lawrence Railroad Company hereby further covenants that it will, at all times hereafter, grant to the said lessees all such access to and inspection of the books, accounts, title deeds, records,

files, and vouchers of the said Atlantic & St. Lawrence Railroad Company as may be necessary to facilitate the operations and secure the interests of the said lessees under this indenture.

Twentieth. The Atlantic & St. Lawrence Railroad Company hereby declares its consent that the lessees herein named, and the survivors and survivor of them, whenever and so soon as the said Grand Trunk Railway Company shall have the requisite authority to accept an assignment of this lease, may assign the same to said company with all the rights, title, and interest of the said lessees therein, and with all their privileges and powers under the same; and the said lessees hereby jointly and severally covenant that whenever such authority shall be so acquired by the said Grand Trunk Railway Company, they and the survivors and survivor of them will, within one year thereafter, execute in due form of law and deliver a valid and effective assignment of this lease, and of all their right, title, and interest therein, and of all their powers and privileges under the same, to the said Grand Trunk Railway Company, to have and to hold to said Company for all the time then remaining unexpired of the term herein demised, and will surrender, yield, and make over to said company all their possession in and of the railroad, property, and estate hereby demised, and all things whatsoever by them acquired and held under this lease appurtenant to said railroad, property, and estate, and used for the purposes thereof.

Upon the execution and delivery of such assignment, and acceptance of the same by the said Grand Trunk Railway Company, the said company shall thereby assume all the obligations of said lessees under this instrument, and shall be holden and bound to keep and perform all the covenants and agreements of the said lessees herein expressed, and to comply with all the conditions and be subject to all the liabilities which by this instrument are imposed upon the lessees herein named, as fully and to all intents and purposes as if the said Grand Trunk Railway Company had been the original lessee under this indenture and party to the same, and shall in like manner be holden to supply, restore, and make good all breaches of any of the covenants hereof by the said lessees, or any of them, before such assignment committed or suffered.

And the said Atlantic & St. Lawrence Railroad Company further covenants that if such assignment shall be made and accepted as aforesaid, within the period of two years from the twenty-ninth day of March hereinbefore named, it will, upon the request of the said Grand Trunk Railway Company, execute and deliver to said Grand Trunk Railway Company any suitable instruments or instrument for the confirmation and assurance of the same, and for confirming and securing to the Grand Trunk Railway Company all the title, rights and interests, powers and privileges by this indenture demised to said lessees and their assigns hereby designated.

Twenty-first. If the said lessees, or any of them, or the survivors or survivor of them, shall, upon the request of the Grand Trunk Railway Company for an assignment of this lease, as aforesaid, refuse or for more than sixty days after such request neglect to make and deliver such assignment, they shall, upon such refusal or neglect, suffer the forfeiture of all their rights, title, interest, and estate in and under the present lease, and the said Atlantic & St. Lawrence Railroad Company may thereupon, without demand or notice, re-enter upon the premises demised, and the said lessees, their agents and servants, may dispossess and remove, and have and hold the said premises, as in and of its former estate, as fully and to all intents and purposes as in case of forfeiture for any of the causes hereinbefore provided. But with the intent, nevertheless, that in case of such forfeiture and re-entry, the said Atlantic & St. Lawrence Railroad Company will, notwithstanding, secure, maintain, and uphold, to the said Grand Trunk Railway Company, all the

beneficial interest of the said Grand Trunk Railway Company in and to the premises hereby demised, and will make, execute, and deliver to the said Grand Trunk Railway Company all such legal title, and evidence of legal title, in and to the said premises, as may be suitable in the law, and practicable to be made, in the manner hereinafter provided, or in any other suitable manner, to effect the objects and purposes of the said two companies in this instrument expressed and set forth.

Twenty-second. If such forfeiture, as aforesaid, shall take place by reason of the refusal or neglect of said lessees to make the assignment aforesaid, or if the said Grand Trunk Railway Company shall, instead of the assignment hereinbefore provided for, elect to enter into, become party to, and accept a new indenture of lease, whereby the said premises shall be originally and directly demised to said Grand Trunk Railway Company, and shall, within two years from the twenty-ninth day of March aforesaid, give notice to the said Atlantic & St. Lawrence Railroad Company of its election aforesaid, the said Atlantic & St. Lawrence Railroad Company will make and enter into a new indenture of lease, in substance upon the same terms, covenants, reservations, conditions, and agreements as are herein expressed, *mutatis mutandis*, between the said Atlantic & St. Lawrence Railroad Company on the one part, and the said Grand Trunk Railway Company on the other part, demising and leasing to the said Grand Trunk Railway Company all the railroad, property, rights, and estate hereby demised, to have and to hold to said Grand Trunk Railway Company for the full term of nine hundred and ninety-nine years from the first day of July aforesaid, and upon the execution and interchange of such new indenture, so entered into, upon the election of the Grand Trunk Railway Company as aforesaid, all the estate, rights, and title of the said lessees, parties to the present indenture, shall *ipso facto* be determined and cease, and all their possession under the same, and all the property, improvements, funds, income, benefits, and advantages by them acquired and held under the same shall be *ipso facto* surrendered, yielded, and made over to the said Grand Trunk Railway Company to its own use and behoof.

But nothing done by virtue of any of the provisions aforesaid relating to the assignment of this lease, or the entering into a new indenture of lease, shall be a waiver of any action, or cause of action, which the said Atlantic & St. Lawrence Railroad Company may have against said lessees, or any of them, for anything by them, or any of them, before that time done, omitted, or suffered.

Twenty-third. And whereas the said city of Portland, by virtue of the provisions of two of the several acts hereinbefore mentioned, authorizing the loan of the credit of said city in aid of the construction of the railroad of said company, which two acts were passed respectively on the first day of August, 1848, and the twenty-seventh day of July, 1850, is the holder of fifteen thousand shares in the capital stock of the said Atlantic & St. Lawrence Railroad Company, issued and transferred to said city as collateral security for liabilities in said acts created, which collateral shares are not comprised in the number of eighteen thousand one hundred and fifty shares hereinbefore enumerated, the said lessees further covenant, as aforesaid, that, if at any time any of the shares so held as collateral security shall be sold and transferred by direction of commissioners, as in said acts is authorized, they will thereafter pay to the said Atlantic & St. Lawrence Railroad Company such additional yearly rent as shall be equal to six dollars in the hundred, by the year, upon the aggregate amount of all such shares as shall be sold and transferred, as aforesaid, at the par value thereof, to be paid in equal half-yearly payments at said Portland, on the thirty-first day of December, and the thirtieth day of June, in every year, for and during the term of this lease; and all the provis-

ions of this indenture hereinbefore expressed, relating to and securing the payment of the rent hereinbefore reserved, shall be applicable to the payment of the additional rent hereby contingently reserved and made payable.

Twenty-fourth. If the said Grand Trunk Railway shall not, within eighteen months from the date of this indenture, obtain the requisite legislative authority to enable it to accept an assignment of this lease, or to become party to a new indenture of lease as hereinbefore provided, the said lessees, and the survivors and survivor of them, shall be entitled, at any time thereafter, to surrender this lease to the said Atlantic & St. Lawrence Railroad Company, and to relinquish and yield to said Atlantic & St. Lawrence Railroad Company all their possession of the railroad and property hereby demised, and the improvements thereof, and property substituted therefor; which surrender shall be by writing delivered or tendered to any member of the board of directors of said Atlantic & St. Lawrence Railroad Company. Upon such delivery or tender of a written surrender, and such relinquishment and yielding of possession as aforesaid, the said lessees and all of them shall be thereupon wholly discharged from all further liability, covenant, and obligation under this indenture, and the said Atlantic & St. Lawrence Railroad Company hereby covenants that upon and after such delivery or tender of a written surrender and relinquishment of possession as aforesaid, it will never make any claim or prosecute any action against said lessees, or any of them, on account of anything in this indenture contained, saving, nevertheless, all actions and causes of action for any breach of covenant by them, or any of them, before that time committed or suffered.

Upon the surrender of this lease as aforesaid, the said Atlantic & St. Lawrence Railroad Company hereby covenants that it will repay in the manner hereinafter provided all the expenditures which shall have been made by said lessees for such improvements of the property demised and enlargements thereof, suited for the operation and use of said railroad, and made within the period of eighteen months in this article mentioned, as shall have been assented to by resolution of the directors of said Atlantic & St. Lawrence Railroad Company at the time of entering upon said improvements and enlargements; and will pay therefor in cash, or by issuing and delivering the bonds of said company to the necessary amount as hereinafter provided.

Twenty-fifth. Upon the surrender of this lease as provided in the next preceding article hereof, the said Atlantic & St. Lawrence Railroad Company further covenants that it will repay to the said lessees, and the survivors and survivor of them, all such sums as the said lessees shall have paid before that time in payment, satisfaction, and discharge of any of the debts, liabilities, and obligations of said company, other than the funded debt of said company and interest thereon, and payments made by said lessees to the sinking funds aforesaid, which funded debt is hereinafter limited and described at the sum of three million four hundred and eighty-five thousand dollars, and will pay therefor in the manner hereinafter provided, with interest upon all the sums so paid by said lessees from the dates of the several payments thereof until the expiration of the period of eighteen months, mentioned in the next preceding article hercof, and no longer.

Upon such surrender, as aforesaid, the said lessees further covenant as aforesaid that they and the survivors and survivor of them will account for, repay, and deliver to said Atlantic & St. Lawrence Railroad Company all the sums of money received by them from said company under this indenture, and all the proceeds realized by them from any of the contracts or other things assigned to said lessees by the eighteenth article hereof; and will reassign and deliver to said company all such of the contracts and other things assigned as aforesaid as shall not have been before that time converted into money or otherwise liquidated and settled.

The balance, if any, which shall be due from said Atlantic & St. Lawrence Railroad Company to the said lessees, upon the mutual accounting between said parties provided for in this and the preceding article hereof, shall be paid by said company in cash, or at the option of said company in the bonds of said company, to be made and delivered to said lessees and the survivors and survivor of them for the discharge of such balance, which bonds shall be in convenient sums in sterling money, at four dollars and eighty-four cents to the pound, payable in twenty-five years in London, in England, to the holder thereof, with interest payable semi-annually in London aforesaid, at the rate of six dollars in the hundred by the year.

Twenty-sixth. For the purpose of raising funds to be applied towards the discharge of the debts, liabilities, and obligations of the said Atlantic & St. Lawrence Railroad Company, mentioned in the fifth article hereof, other than the loans of the credit of the city of Portland, amounting to the sum of two millions of dollars, and the mortgage bonds of said company amounting to the sum of one million of dollars, referred to in said article, and for the purpose of establishing and limiting the whole funded debt of said company at the sum of three million four hundred eighty-five thousand dollars, the said Atlantic & St. Lawrence Railroad Company further covenants that it will, without delay, issue its further bonds to the amount of four hundred eighty-five thousand dollars; which bonds shall be made in sterling money at four dollars and eighty-four cents to the pound, in sums of five hundred pounds each, as nearly as may be, payable in twenty-five years in London, in England, to the holder thereof, with interest payable semi-annually in London aforesaid, at the rate of six dollars in the hundred by the year, and shall not be sold or disposed of at less than the par value thereof, without first giving to the said lessees the right to purchase the same at par, and the said lessees hereby covenant as aforesaid that upon such offer they will purchase the same at par. And the proceeds of such bonds shall be applied by said Atlantic & St. Lawrence Railroad Company in payment and discharge of that amount of the debts, liabilities, and obligations aforesaid.

If the said bonds of the company shall be sold and disposed of as aforesaid, and this lease shall not be surrendered as provided in the twenty-fourth article hereof, the said lessees hereby covenant as aforesaid that they will fully and forever indemnify, guarantee, save, and hold harmless the said company against all liability for principal or interest on account of such bonds; and all the provisions contained in the eleventh and twelfth articles hereof, relating to the forfeiture of this lease, for default of any of the payments therein mentioned, shall be applicable to the payment of the principal and interest which may be due upon the bonds by this article provided for.

Nothing in this instrument contained is intended, or is to be taken, as impairing or affecting in any manner any previously existing rights or interests of the city of Portland in and to the railroad and property hereby demised.

The two several schedules hereinbefore referred to, and marked respectively "schedule of property" and "schedule of debts," are drawn in duplicate of even date with these presents, and identified by the signatures of the parties hereto, and may be referred to and made available to either party to the same effect as if the same were annexed to and formed a part of this indenture.

In testimony whereof the Hon. John Ross, Benjamin Holmes, and William Jackson, Esquires, aforesaid, have severally set their hands and seals to this indenture in duplicate, and the Atlantic & St. Lawrence Railroad Company, by Josiah S. Little, the president thereof, duly authorized for this purpose by a vote of the directors, of which a certified copy is hereto annexed, has subscribed the same and caused the corporate seal of said company to be here-

unto affixed this fifth day of August in the year of our Lord one thousand eight hundred and fifty-three.

	JOSIAH S. LITTLE,	[L. S.]
<i>President of the Atlantic & St. Lawrence Railroad Company.</i>		
	BENJAMIN HOLMES.	[L. S.]
	WILLIAM JACKSON.	[L. S.]
	JOHN ROSS.	[L. S.]

Signed, sealed, and delivered in the presence of the undersigned witnesses :

P. BARNES,
of Portland aforesaid.
 A. ROBERTSON,
of Montreal aforesaid, Advocate.

Countersigned by

CHARLES E. BARRETT,
Treasurer of the Atlantic & St. Lawrence Railroad Company.
 B. CUSHMAN, *Clerk.*

The undersigned, the mayor and aldermen of the city of Portland, in pursuance of the third section of the act of the Legislature of Maine, passed on the 29th day of March, 1853, entitled "An act to authorize a lease of the Atlantic & St. Lawrence Railroad," hereby express their assent to the foregoing lease, and have severally subscribed their signatures upon this instrument, this fifth day of August, 1853.

JAMES B. CAHOON, *Mayor.*
 REFUS E. WOOD.
 GEORGE PEARSON.
 GEORGE W. WOODMAN.
 O. L. SANBORN.
 JACOB MCLELLAN.
 JONAS H. PERLEY.
 S. L. CARLETON.

ASSIGNMENT OF LEASE.

This instrument of transfer, assignment, and release, made and executed this ninth day of February, 1855, by and between the Hon. John Ross, heretofore of Belleville, now of the city of Quebec, in the province of Canada, Benjamin Holmes, Esq., of Montreal, in said province, and William Jackson, Esq., of Birkenhead, England, acting herein by his attorney, the Hon. John Ross aforesaid, of the first part, and the Grand Trunk Railway Company of Canada, acting herein by the Hon. Francis Hincks, in said province, duly authorized for the purpose, of the second part,

Witnesseth, that whereas, under and by virtue of a certain indenture of lease, executed and dated the fifth day of August in the year of our Lord one thousand eight hundred and fifty-three, the "Atlantic & St. Lawrence Railroad Company," a corporation established by the Legislature of the State of Maine, did demise and lease for the term of nine hundred and ninety-nine years, commencing from the first day of July, one thousand eight hundred and fifty-three, subject to the payment of the rent and upon the terms and conditions in such indenture of lease contained, to them, the above-named Hon. John Ross, William Jackson, and Benjamin Holmes, the railroad of the said Atlantic & St. Lawrence Railroad Company, as then chartered, located, and constructed, commencing at the city of Portland, in the State of Maine, extending thence to the boundary line of the State of New Hampshire, and

thence continued through the State of New Hampshire to and into the State of Vermont, as far as to the Common Junction at Island Pond, in the county of Essex, in the said State of Vermont, together with all the property and estate, real, personal, and mixed, wheresoever the same might be situated, belonging to said Atlantic & St. Lawrence Railroad Company, appurtenant to and designed for the purposes of maintaining and operating said railroad, including all the stations, warehouses, and other buildings, bridges, piers, wharves, shore-rights, water-rights, and harbor privileges belonging to, vested in, or possessed by the said Atlantic & St. Lawrence Railroad Company, and all the rights of way and other easements, rights to acquire easements, the road-bed, superstructure, equipment, apparatus, implements, rails, and other materials and stores which the said company possessed, claimed, held, occupied, and enjoyed, for the objects of its incorporation, under the charter thereof, according to the schedule of said property and estate, in the said lease named and marked "schedule of property"; also all the tolls, rates, fares, rents, and incomes which the said company was then or might thereafter be entitled to receive and take, and all its rights to demand, collect, and receive the same, and all the claims of every nature, credits, choses in action, causes of action, appeals and rights of appeal, which belonged to and were held by said company at the commencement of and during the term in the said lease defined and limited, together with all the rights and privileges acquired, and to be acquired, through the exercise of the corporate powers of the said Atlantic & St. Lawrence Railroad Company;

And, whereas, it is covenanted and agreed in and by the said lease, among other things, that the said Hon. John Ross, William Jackson, and Benjamin Holmes, the said party hereto of the first part, and the survivors and survivor of them, whenever and so soon as the said "Grand Trunk Railway Company," party hereto of the second part, should have from the Legislature of Canada the requisite authority to accept an assignment of said lease, might assign the same to the said company, party hereto of the second part, with all the rights, title, and interest of the said lessees, party hereto of the first part, and with all their privileges and powers under said lease;

And, whereas, by and in virtue of the said lease, the said party hereto of the first part did covenant and agree that whenever such authority should be so acquired by the said Grand Trunk Railway Company of Canada, party hereto of the second part, they, the said Hon. John Ross, William Jackson, and Benjamin Holmes, and the survivors and survivor of them, would, within one year thereafter, execute in due form of law and deliver a valid and effective assignment of all their rights, title, and interest therein, and of all their powers and privileges under the same, to the said Grand Trunk Railway Company of Canada, to have and to hold unto the said company for all the time then remaining unexpired of the term of said lease demised, and would surrender, yield, and make over to said company all their possession in and of the railroad property and estate thereby demised, and all things whatsoever by the said lessees, party hereto of the first part, acquired and held under said lease, appurtenant to said railroad property and estate and used for the purposes thereof;

And, whereas, by and in virtue of the said lease, it was further covenanted and agreed that upon the execution and delivery of such assignment to, and acceptance of the same, by the said Grand Trunk Railway Company of Canada, the said company should thereby assume all the obligations of the said John Ross, William Jackson, and Benjamin Holmes, under the said indenture or instrument of lease, and should be holden and bound to keep and perform all the covenants and agreements of the said lessees in the said lease expressed, and to comply with all the conditions and be subject to all the liabilities which by said indenture of lease were imposed upon the said Hon.

John Ross, William Jackson, and Benjamin Holmes, as lessees aforesaid, as fully, and to all intents and purposes, as if said Grand Trunk Railway Company of Canada had been the original lessee under said indenture of lease, and party to the same;

And, whereas, the said Grand Trunk Railway Company of Canada, under and by virtue of a certain act of the Legislature of the province of Canada, passed in the eighteenth year of Her Majesty's reign, chapter 33, entitled, "An act to amend the acts relating to the Grand Trunk Railway Company of Canada," has been duly authorized to accept and take the said lease, and the interest and property of the said Hon. John Ross, William Jackson, and Benjamin Holmes, on the terms and conditions in the said lease mentioned, with such modifications and alterations as should be agreed to by the directors of the said company, and to indemnify them, the said Hon. John Ross, William Jackson, and Benjamin Holmes, from and against the covenants and conditions therein contained, on the part of the said Hon. John Ross, William Jackson, and Benjamin Holmes, and to hold the said portion of railway and property subject to the rent and on the terms and conditions in the said lease specified, with such modifications as aforesaid;

And, whereas, the said Grand Trunk Railway Company of Canada is ready and willing to take and accept a transfer and assignment of the said lease, and of all the premises therein mentioned, subject to the several and respective clauses, conditions, covenants, agreements, and provisions therein contained;

Now, therefore, these presents witness that, for the considerations aforesaid, and the further consideration of ten shillings in hand, well and truly paid by the said party hereto of the second part to the said party hereto of the first part, the receipt whereof is hereby acknowledged, and in compliance with the conditions and requirements contained and expressed in the said lease, the said party hereto of the first part, to wit, the said Hon. John Ross, William Jackson, represented and acting as aforesaid, and Benjamin Holmes have assigned, transferred, and made over, and by these presents do assign, transfer, and make over unto the said Grand Trunk Railway Company of Canada, represented, acting, and accepting thereof as aforesaid, all the right, share, claim, title, interest, and demand generally whatsoever, which they, the said Hon. John Ross, William Jackson, and Benjamin Holmes, have, or may in any way, shape, or manner have, claim, and demand in and to the said herein above-mentioned lease, and the unexpired term thereof, together with the said lease and all the premises generally whatsoever thereby leased and demised, and all the powers and privileges which they may have under and by virtue of the same, as also their possession in and of the railroad property and estate thereby demised, and all things whatsoever by them acquired and held under said lease, appurtenant to said railroad property and estate and used for the purposes thereof, the whole without any exception and reserve, and as fully and effectually as if the same had been directly entered into and made between the said Atlantic & St. Lawrence Railroad Company and the said Grand Trunk Railway Company of Canada, subject to all and every the several and respective clauses, conditions, obligations, covenants, agreements, and provisions contained, mentioned, and set forth in the said lease, whether relating to and in favor of, or imposed upon the said Hon. John Ross, William Jackson, and Benjamin Holmes, and the said Grand Trunk Railway Company of Canada, and either of them, or relating to and in favor of, or imposed upon the said Atlantic & St. Lawrence Railroad Company;

To have and to hold all and every the said hereby assigned and transferred premises unto the said Grand Trunk Railway Company of Canada for all the time now remaining unexpired of the term in said lease demised.

And the said parties hereto do hereby declare that in contemplation and in view of the present assignment and transfer the said Grand Trunk Railway Company of Canada has, ever since the commencement of the term of the said lease, been in possession of the railroad, and all railroad property, movable and immovable, and all other premises demised and leased under and by virtue of the said indenture of lease, and that the said company has worked, maintained, and kept in operation the said railroad at its own cost and expense, and for its own profit, benefit, and advantage, and that all buildings, enlargements, additions, and improvements to said railroad and stations, and the perfecting of the equipment thereof, have been made, done, performed, and paid for by the said Grand Trunk Railway Company of Canada, and that therefore the same and every part thereof belong to the said company, and that the said Hon. John Ross, William Jackson, and Benjamin Holmes have no claim whatever on the said company for the profits derived from the working of the said railroad by the said company, nor any claim in, to, or upon, or by reason of the said buildings, enlargements, additions, and improvements to said railroad, stations, and the equipment thereof.

And the said Grand Trunk Railway Company of Canada doth hereby acknowledge to have received from the said Hon. John Ross, William Jackson, and Benjamin Holmes the original duplicate of the said lease whereof quit.

And, whereas, the said Grand Trunk Railway Company of Canada has, since the commencement of the said lease, expended divers sums of money for the improvements made on said railroad, and towards the perfecting of the equipment thereof, the said Grand Trunk Railway Company of Canada will have to make with the said Atlantic & St. Lawrence Railroad Company such stipulations and arrangements as may be agreed upon between them, in order to obtain the capitalizing of such expenditure by the issue of shares, or otherwise, if entitled under said lease to obtain such an issue of shares.

Therefore, the said Grand Trunk Railway Company of Canada doth hereby discharge the said Hon. John Ross, Benjamin Holmes, and William Jackson of all liability and responsibility whatever, by reason or in consequence of their having been parties to the said lease, and doth promise, covenant, and agree to keep them, and every one of them, free and harmless of all claims and demands which might hereafter be made upon and against them, and either of them, as such parties to said lease.

And the said parties hereto do hereby further declare that all rents, debts, interest, and other sums of money, which, under and by virtue of the said lease, were to be paid by the said Hon. John Ross, Benjamin Holmes, and William Jackson, have been paid and discharged by the said Grand Trunk Railway Company of Canada ever since the commencement of the term of the said lease up to this day, and that, therefore, they, the said Hon. John Ross, Benjamin Holmes, and William Jackson, have no claim whatever on the said Grand Trunk Railway Company of Canada for re-imbursement of any sum of money.

And in consideration of all and every the premises, and of these presents, the said Grand Trunk Railway Company of Canada doth hereby assume all liabilities generally whatsoever, mentioned in the said lease as having to be paid, either by the said Hon. John Ross, Benjamin Holmes, and William Jackson, or by the said Grand Trunk Railway Company of Canada, the whole as fully and effectually as if the said company was party to the said lease, as principal obligor.

In witness whereof, the above-named John Ross, Benjamin Holmes, and William Jackson, by his said attorney, have hereunto severally subscribed their hands and set their seals, and the said Grand Trunk Railway Company of Canada has caused the same to be subscribed in its behalf by the said Francis Hincks, and the corporate seal of said company to be affixed hereto, at Port-

land, in the State of Maine, this ninth day of February in the year of our Lord one thousand eight hundred and fifty-five.

JOHN ROSS, [L. S.]

BENJAMIN HOLMES, [L. S.]

WILLIAM JACKSON, [L. S.]

Per JOHN ROSS, *his Attorney*,

F. HINCKS, [L. S.]

For the Grand Trunk Railway Company of Canada.

Signed, sealed, and delivered in presence of

GEORGE ET. CARTIER.

G. F. SHEPLEY.

SUPPLEMENT TO LEASE.

Articles and covenants supplemental to the lease of the Atlantic & St. Lawrence Railroad, executed and delivered on the fifth day of August, 1853, by the Atlantic & St. Lawrence Railroad Company, to John Ross, Benjamin Holmes, and William Jackson.

First. Whereas, the Grand Trunk Railway Company of Canada, in pursuance of the provisions of said lease, has become the assignee thereof, and has entered into possession of the railroad and property thereby demised; and, whereas, the said Atlantic Company, at the request of said Grand Trunk Company, since the making of said assignment, has issued and delivered to the said Grand Trunk Company six thousand eight hundred and fifty-nine shares in the capital stock of said Atlantic Company, being so many shares over and above the number of eighteen thousand one hundred and fifty, which had been issued and authorized to be issued at the making of said lease — which additional shares were so issued and delivered on account of construction expenditures, in improving and perfecting the said railroad and the equipment thereof, and for the purpose of capitalizing said expenditure,— and has agreed to issue and deliver to the said Grand Trunk Company (the requisite legislative authority being obtained, if necessary, for the enlargement of said capital stock) such further shares thereof as may be required to satisfy and discharge, by the proceeds of the same, the bonds heretofore issued by the said Atlantic Company, and the certificates of debt of the city of Portland, made and issued in aid of the construction of said railroad, and has further agreed that if, upon the maturity of said bonds and certificates of debt, it shall be impracticable or unadvisable, by reason of the condition of the money market at such times, to pay off and discharge the said bonds and certificates from the proceeds of shares, or otherwise, the said Atlantic Company will then, at the request of said Grand Trunk Company, issue its further bonds in renewal and extension of the bonds and certificates so maturing, and thereafter, if requested for like reason, will issue further successive series of bonds, for like further successive renewals and extensions;

Now, in consideration of the premises, the said Grand Trunk Railway Company of Canada hereby covenants that, upon the amount of the par value of any and all such additional shares as have been or may be issued as aforesaid, it will pay an additional yearly rent under said lease at the rate of three dollars in the hundred, half yearly, under like conditions with the payments of the rent reserved in said lease as therein provided, so that the rent reserved and accruing under said lease shall at all times be the annual interest, at the rate aforesaid, upon the aggregate par value of all the shares in the capital stock of said Atlantic Company which shall be lawfully issued and outstanding.

The said Grand Trunk Company also further covenants that it will duly provide for and pay the interest which shall at any time accrue and become payable upon any and all the further bonds and successive series of bonds of said Atlantic Company which may be issued in renewal and extension of the present bonds of said company, and of the certificates of debt of the city of Portland, as aforesaid, — and will duly provide for and pay the principal of all the several bonds and series of bonds which shall be issued in renewal and extension as aforesaid, as the same shall from time to time successively mature and become payable.

Second. And, whereas, by an act of the Legislature of Maine, passed the twenty-third day of September, eighteen hundred fifty-three, authority is given to convert the shares of the capital stock of said Atlantic Company into values expressed in the sterling currency of England, and to provide for the payment of dividends thereon in London, in England, and the necessary regulations and forms therefor have been adopted by the stockholders and directors of the said Atlantic Company, the said Grand Trunk Railway Company of Canada hereby further covenants, that upon reasonable notice, according to said regulations, given by the said Atlantic Company, of the number of shares which may have been converted and issued in sterling currency, at the expiration of every half year, when the rent reserved under the said lease shall become payable, it will provide for and pay, at its office in London, three pounds sterling on every such sterling share of one hundred pounds each, and will pay the same semi-annually, on the fifteenth day of March and the fifteenth day of September, in each and every year during the term of said lease; which payments so made in London are to be in reduction and discharge of so much of the half yearly rent under said lease as would otherwise be payable at Portland on the thirtieth day of June and the thirty-first day of December, respectively, preceding the dates above recited.

And it is understood and agreed by the parties hereto that all the provisions, covenants, and stipulations contained in said lease, and in these supplemental articles, respecting the payment of rent reserved and accruing under the same, are to be taken as subject to and qualified by the foregoing provision for the payment of a part of the said rent at London, in March and September annually, instead of at Portland, in June and December, as originally provided.

Third. And in further consideration of the premises, the said Grand Trunk Railway Company of Canada hereby expressly agrees and consents that any failure on its part for more than sixty days to pay the rent which shall at any time become payable upon any additional shares issued and to be issued under the provisions of these supplemental articles, or any failure to pay the bonds and successive series of bonds to be issued in renewal and extension of the now existing bonds of the said Atlantic Company and certificates of debt of the city of Portland, or to pay the interest from time to time accruing upon the same, or any failure for more than sixty days to provide for and pay, in London, such part of the rent under said lease as is in these supplemental articles provided and agreed to be paid at that place, shall be a cause of forfeiture of said lease, as fully and effectually, and in like manner and upon like conditions with the causes of forfeiture recited and expressed in the eleventh article of said original lease; and such forfeiture may be enforced, and the determination of said lease effected therefor, in the manner and under the limitations expressed in the twelfth article of said original lease, as fully and absolutely as if the causes of forfeiture in these supplemental articles defined and set forth had been expressed and provided for in said original lease, and with like remedy and relief from such forfeiture as is in said original lease provided.

In testimony whereof, the said companies have mutually caused this instrument to be subscribed in duplicate in their behalf, respectively — by Benjamin Holmes, Esquire, vice-president of said Grand Trunk Railway Company, duly authorized for this purpose on its behalf, and by St. John Smith, Esquire, president of said Atlantic and St. Lawrence Railroad Company, duly authorized for this purpose on its behalf, and the respective corporate seals of said companies to be hereunto affixed, this sixth day of December in the year of our Lord one thousand eight hundred and fifty-five, — the resolutions of the respective boards of directors of said companies, authorizing the execution hereof as aforesaid, being hereunto annexed.

THE ATLANTIC & ST. LAWRENCE RAILROAD COMPANY,

By ST. JOHN SMITH, *President*. [L. S.]

THE GRAND TRUNK RAILWAY COMPANY, OF CANADA,

By BENJ. HOLMES, *Vice-President*. [L. S.]

Signed, sealed, and interchanged in presence of

P. BARNES, of *Portland aforesaid*.

T. DOUCET, of *Montreal, Notary*.

Countersigned by

CHAS. E. BARRETT,

Treas. of the A. & St. L. R. R. Co.

The undersigned, the mayor and aldermen of the city of Portland, in pursuance of the third section of the act of the Legislature of Maine, passed on the twenty-ninth day of March, 1853, entitled, "An act to authorize a lease of the Atlantic & St. Lawrence Railroad," hereby express their assent to the foregoing articles and covenants, supplemental to the lease, executed and delivered on the fifth day of August, 1853, and have severally subscribed their signatures upon this instrument, this sixth day of December, 1855.

NEAL DOW, *Mayor*.

S. L. CARLETON.

HENRY A. JONES.

JOSEPH LIBBY.

SAM'L J. ANDERSON.

WM. W. THOMAS.

JOSEPH RING.

LEASE

OF THE PORTLAND & OGDENSBURG RAILWAY COMPANY TO MAINE CENTRAL RAILROAD COMPANY.

This indenture, made in duplicate this twentieth day of August, A. D. 1858, by and between the Portland & Ogdensburg Railway, a corporation existing under and by virtue of the laws of the States of Maine and New Hampshire, party of the first part and hereinafter styled the lessor, and the Maine Central Railroad Company, a corporation existing under and by virtue of the laws of the State of Maine, party of the second part and hereinafter styled the lessee,

Witnesseth, that, in consideration of the premises and of the rents hereinafter reserved to be paid by the lessee, and of the covenants and agreements hereinafter contained to be performed and fulfilled by the lessee, the said

Portland & Ogdensburg Railway does hereby demise and lease to the said Maine Central Railroad Company all the railroad of said lessor located and constructed from the city of Portland, in the State of Maine, to the western boundary line of the State of New Hampshire, including all the right, title, and interest of the lessor in and to all railroads, or parts of railroads, between Portland, aforesaid, and Lunenburg, in the State of Vermont, constructed or operated by the lessor, and in and to the railroad and bridge lying between the junction with the Boston, Concord & Montreal Railroad, in Whitefield, in the State of New Hampshire, and said Lunenburg, and all rights possessed by the lessor, by lease or contract, in any and all railroads forming any part of the through line from said Portland to Ogdensburg, in the State of New York, with all its rights of way, side tracks, branches, stations and station grounds, bridges, piers, wharves, and easements, and all its rolling stock and equipment, all its franchises, rights, and privileges under its charters and the laws of the States of Maine and New Hampshire, and all its right, title, and interest in and to all other property of whatsoever nature and wheresoever situated;

To have and to hold the said railroads, property, estate, franchises, rights, and privileges and all and singular the premises hereby demised, with all the appurtenances thereof, to said Maine Central Railroad Company, its successors and assigns, for and during the full term of nine hundred and ninety-nine years from the thirtieth day of August, in the year eighteen hundred and eighty-eight;

Subject to the provisions of all the special acts of the Legislatures of the States of Maine and New Hampshire affecting the rights, privileges, powers, and duties of the lessor, and of all the general laws of said States, now in force or hereafter to be enacted;

And subject also to all liens and incumbrances in any way lawfully existing upon the same; especially to the mortgage from the Portland & Ogdensburg Railroad Company dated the first day of November, A. D. 1870; the liens, debts, and liabilities which have been or may be created by Samuel J. Anderson, of said Portland, as receiver of the property of said Portland & Ogdensburg Railroad Company, or his successor in office; and to the dues, charges, and expenses of the trustees under said mortgage and under the mortgage from said Portland & Ogdensburg Railroad Company dated the first day of November, A. D. 1871; and any other mortgage on the demised estate:

Said lessee yielding and paying rent therefor, for the first three years of said term, at the rate of one per cent per annum on the aggregate capital stock of said lessor company lawfully issued or to be issued, and for the remainder of said term at the rate of two per cent per annum on said stock, payable in quarterly payments (hereinafter termed dividends) on the last days of November, February, May, and August of each year, beginning on the last day of November, 1888, at the office of the treasurer of said Maine Central Railroad Company, as follows: During said first three years, twenty-five cents, quarter-yearly as aforesaid, on each share of said stock, and after said three years and during the remainder of all said full term, fifty cents, quarter-yearly as aforesaid, on each share, to the several holders thereof, on the days when such payments become due as aforesaid, as shown by the books containing the names of the holders of said capital stock; but if any of said stock shall not have been issued at the time when first payment of rent becomes due, and shall thereafter be legally issued, the holder thereof shall then be entitled to receive the previously accruing dividends thereon, precisely as if said stock had been seasonably issued, and the dividends thereon had not been paid.

This lease is made and accepted upon the following further terms, covenants, and agreements, viz.:

First. The lessee is to maintain and operate, and hereby for itself and its successors and assigns covenants to maintain and operate, the railroads, property, rights, and privileges hereby demised, in furtherance of the objects contemplated by the charters of the lessor and of said Portland & Ogdensburg Railroad Company in the States in which the same is located and constructed, in pursuance of all the general and special laws of the States aforesaid affecting the same, and in such manner as to promote the best public convenience and advantage under said charters and laws during the term of this lease.

In operating said railroad the lessee shall, and hereby for itself, its successors and assigns, covenants and agrees that it will, so far as practicable, endeavor to make such connections and such traffic and business arrangements with other systems and roads leading to and from the West, that the leased premises shall be operated as a part of a system of roads doing a through line business to and from the West, and that it will use all reasonable efforts to give to the city of Portland as favorable terms for such business as are given to other Atlantic cities.

And said lessee shall, and hereby for itself, its successors and assigns, covenants and agrees that it will, freely deliver to and receive from connecting railroads, passengers and cars, with or without merchandise loaded therein, and shall and will afford all reasonable facilities at its connections with other railroads for such exchange of passengers and cars, and shall and will deliver passengers and freight to, and take the same from, connecting railroads without discrimination; and all facilities and inducements reasonably within its power shall be extended by the lessee, as to the use of the lessor's tracks on reasonable terms, to the Canadian Pacific or any other railway company, to make the city of Portland a terminus for its through business and freight from the West.

Second. The lessee further covenants as aforesaid, for itself and its successors and assigns, that it will, at all times during the term of this lease, maintain and keep the said railroad, buildings, superstructures, equipment, and other property hereby demised, and such as may be substituted in place of the same, in good and substantial repair and condition, and will from time to time make such alterations, improvements, and enlargements of said railroad and its appurtenances, and such additions to and renewals of its buildings, equipment, apparatus, and other movable property of every kind, as shall be necessary for the safe, convenient, and regular transportation of passengers, freight, and mails, upon all and every part of the line, and from and to all the several stations of said railroad, so as to accomplish effectually the public objects contemplated by the charters and laws aforesaid, and to promote and sustain most beneficially all the reversionary interests of the said Portland & Ogdensburg Railway.

Third. The said lessee is hereby authorized to sell or otherwise dispose of, alter, amend, and repair any of the buildings, rails, equipment, apparatus, or other movable property hereby demised, or which may at any time be used or employed in or about said railroad, or be appurtenant thereto, so however that in all such cases, and the said lessee hereby covenants as aforesaid that in all such cases there shall be substituted in place of that which is sold or otherwise disposed of, altered, amended, or repaired, other property of the like kind, and equally good or better for the like purposes; and the said lessee is hereby further authorized to cause to be made or constructed any new buildings, tracks, rails, apparatus, equipment, or other movable property necessary and beneficial to be used for the purposes of said railroad, and to make any and all improvements, alterations and repairs, renewals and enlargements of said railroad, which may be necessary for the greatest

efficiency and use of the same, but not so as to divert the same substantially from its present location, nor to impair the most convenient public use of the same;

Provided, however, that said lessee may from time to time, with the consent of the lessor's board of directors, sell and dispose of property not required for the operation and use of said railroads as herein provided, and apply the proceeds for the improvement of the demised property; and the president of the lessee, for the time being, is made the attorney of the lessor to execute, jointly with the lessee, in the name of the lessor, all conveyances of property hereby authorized to be conveyed, when such conveyance shall be ordered by vote of the board of directors of said lessee.

Fourth. The said lessee further covenants as aforesaid, for itself, its successors and assigns, that it will duly pay the rent herein reserved, at the times and in the manner herein provided, and will duly pay all taxes which may lawfully be assessed in any jurisdiction, and for any purpose, upon any and all the corporate property, rights, estate, and franchises hereby demised.

Fifth. The said lessee further covenants as aforesaid, for itself and its successors and assigns, that it will assume, provide for, satisfy, and fully discharge all the debts, liabilities, and obligations of the said lessor, and all the debts, liabilities, and obligations, if any, which may hereafter during the term of this lease by implication of law arise against and be due from said Portland & Ogdensburg Railway, and all mortgages, liens, and incumbrances on the demised estate, including the bonds of the Portland & Ogdensburg Railroad Company, amounting to eight hundred thousand dollars, secured by mortgage from said company, dated the first day of November, A. D. 1870, and the coupons thereto annexed as they severally become due; and all the debts, liabilities, and obligations of Samuel J. Anderson, as receiver as aforesaid, or his successor in office; and all the debts, liabilities, and lawful charges for their services as trustees, and for legal and other expenses incurred by them in the execution of their trust, of Nathan Webb, Weston F. Milliken, and Horatio N. Jose, trustees under the mortgage from the Portland & Ogdensburg Railroad Company, dated the first day of November, A. D. 1871, and all the debts, liabilities, and lawful charges as aforesaid of the trustees under any and all other mortgages on said railroad; and said lessee will save said lessor harmless from all liability whatsoever on all and singular said debts, liabilities, and obligations as fully and completely as if they were the proper debts, liabilities, and obligations of the lessee.

Sixth. The said lessee further covenants as aforesaid, for itself and its successors and assigns, that it will, from and after the execution of this indenture, assume the defence of all suits, actions, complaints, and prosecutions which may then be pending, or which may thereafter be brought against the said lessor or any of its officers, servants, or agents, or said receiver or his successor, for anything by them done under authority and in behalf of said company, and will indemnify and save harmless the said stockholders thereof and said receiver against all costs and expenses incurred in such defence, and against any and all judgments which may be recovered in such suits, and against all actions, damage, and liability on account of anything which may be done or omitted by the said lessee, or its successors, while exercising or assuming to exercise any of their powers and rights under this indenture, and on account of any and all acts, omissions, or neglects of any kind in any manner done or suffered by the said lessee or any of its servants or agents.

The lessee shall assume all traffic balances and other debts due, or that may become due, from said lessor or said receiver to other railroad or transportation companies; shall assume, observe, and perform all contracts of every nature made by the lessor before the final execution and delivery of this in-

denture, or by said receiver or his successor while in possession of the demised property; shall furnish the directors of the lessor with free annual passes over the railroads operated by the lessee under this lease; shall permit the demised premises to be inspected annually by some competent person appointed by the lessor, who shall report to the lessor the condition of said premises, and who, for the purposes of such inspection, shall be furnished with free transportation over the railroads operated by the lessee under this lease; shall make all returns required by the lessee by law; shall furnish the lessor with all such statements as shall enable it to make all returns required by law of the lessor; and, at the end of the term of this lease, or at any earlier termination thereof from any cause whatever, shall surrender the demised premises in like order and condition as they were at the inception of this lease, or may be put in during the term, with all improvements thereon and all extensions thereof, and with all additional railroads or parts of railroads that may be constructed by the lessee under the charter of the lessor or in its name.

To prevent uncertainty as to the property herein demised and to be accounted for upon the termination or forfeiture of this lease, there shall be made as of the day when this lease takes place, an inventory, description, and appraisal of all the estate and property, real and personal, belonging to the lessor, and coming into the possession of the lessee by virtue of this lease. Such inventory, description, and appraisal shall be made by two competent persons, one selected by each party; in case of their disagreement they shall refer the matter in difference to some third person selected by the two, whose decision shall be made final. Such inventory, description, and appraisal shall be made in duplicate, and an original furnished to each party, and shall be evidence of the nature, value, and condition of the property demised at the inception of this lease in all cases in which any question of such nature, condition, or value may arise.

Serenth. The said lessee further covenants as aforesaid, for itself and its successors and assigns, that it will, on or before the expiration of every year during the term of this lease, pay to the said lessor the sum of five hundred dollars, for all such necessary expenses as the lessor may incur, within the year aforesaid, for the compensation of such officers as may be required in maintaining the organization of said company, for incidental charges attending the holding of its corporate meetings, and for all necessary proceedings in maintaining and preserving its corporate powers.

Eighth. The said lessee further covenants as aforesaid, for itself and its successors and assigns, that it will never assign this lease, nor underlet the whole, nor any part of the demised railroad, without the written assent of the lessor first had and obtained, authorized by a vote of the stockholders thereof at a meeting called for the purpose, and that it will at all times do, observe, and perform whatever may be lawful and reasonably required on its part to be done, observed, and performed, to uphold, protect, and maintain the franchise, rights, and interests of said Portland & Ogdensburg Railway, and that it will not do, nor voluntarily suffer anything to be done, which shall tend to a forfeiture of the franchise of said Portland & Ogdensburg Railway or in any manner impair the value of the same.

Provided, however, that in the event of the lessee's leasing their system to, or consolidating with, any corporation operating a connecting railroad or system of railroads, the lessee's interest in the demised premises shall pass by such lease or contract of consolidation.

Ninth. This lease is upon the condition that if said lessee, its successors or assigns, shall fail to pay any rent-dividend on demand as the same shall become payable and shall suffer the same to be in arrears for more than

six months after the same becomes payable and payment is demanded, or shall fail to pay the principal and coupons of said bonds secured by said mortgage dated the first day of November, A. D. 1870, or the principal and interest of any bonds secured by any mortgage of the demised premises made as hereinafter provided, or the principal or interest on said receiver's certificates, when presented for payment on or after maturity, and shall suffer them, or any of them, to be in arrears for more than six months after maturity and presentation for payment, or shall fail to perform any award made under the sixteenth section of this indenture as provided in said section, then, and in either event, said lessee shall thereupon be liable to suffer the forfeiture of this lease.

And if such default shall continue for the space of six months, the said Portland & Ogdensburg Railway, into and upon all the said railroad property and estate hereby demised, or into and upon any part thereof for and in the name of the whole, shall have the right immediately, or at any time thereafter, without notice or demand, to re-enter, and take and hold possession of the same, and use and operate the same and take the income and proceeds thereof, and the said lessee, its successors and assigns, and all its servants and agents to dispossess and amove; and may, at the time of such re-entry or at any time thereafter, give written notice to the said lessee or its successors or assigns, that it holds the said railroad property, estate, and improvements for the purpose of effecting the determination of this lease and enforcing the forfeiture thereof, for the specified breach or breaches of covenant or agreement for which such entry was made; which written notice shall be sufficient, if delivered by authority of the directors of the Portland & Ogdensburg Railway to any officer of said Maine Central Railroad Company at its principal office in said Portland; or in case of inability to deliver notice as aforesaid, by publishing such notice for two weeks in some public journal in the said city of Portland. If the said lessee, its successors or assigns, shall not, within six months after the delivery of notice, or the last publication thereof as aforesaid, repair, supply, and make good all the deficiency and breach of covenant or agreement for which such entry was made, with interest for the time of such deficiency upon the sum or sums unpaid or in arrears, and with all damages in any wise sustained by such breach or breaches of covenant or agreement, all the estate, rights, and interests of the said lessee, its successors and assigns, shall be absolutely determined and forfeited, and the said Portland & Ogdensburg Railway shall have and hold all the said railroad property and estate demised, and all the improvements thereof and property substituted therefor, and all extensions and additions thereto as hereinbefore stated, and all the income thereof, as in and of its former estate and to its own use, without liability to account to said lessee, its successors or assigns, for any of said property, estate, improvements, substitutions, extensions or additions, or income, or to refund or reimburse to said lessee, its successors or assigns, any sum before that time advanced, paid, or applied in fulfillment or part fulfillment of any of the covenants or agreements herein expressed. But if the said lessee, or its successors or assigns, shall, at any time after such entry for breach of covenant and before the expiration of the six months aforesaid from the delivery or publication of notice aforesaid, repair, supply, and make good all the deficiency and breach of covenant or agreement for which such entry was made, with interest as aforesaid, and with all damages in any wise sustained by such breach or breaches of covenant or agreement, then the said lessee, or its successors or assigns, shall be restored to the possession, use, and enjoyment of all the demised premises and improvements thereof and property substituted therefor as fully and amply, and to all

intents and purposes as if no such deficiency or breach of covenant had occurred, and the said Portland & Ogdensburg Railway shall restore, and hereby covenants that it will restore and yield possession as aforesaid, and will account for and pay to the said lessee, its successors or assigns, all the net profits and income received by the said Portland & Ogdensburg Railway by virtue of its entry and possession aforesaid.

Tenth. Whereas the bonds secured by the foreclosed mortgage from the Portland & Ogdensburg Railway Company, dated the first day of November, A. D. 1871, outstanding and unpaid on the fifteenth day of December, A. D. 1885, being the date of the foreclosure of said mortgage, and the coupons thereon then due and unpaid, form the basis of, and, in fact, constitute the capital stock of the Portland & Ogdensburg Railway, it is mutually agreed by the parties hereto that said stock is the stock upon which dividends are to be paid as hereinbefore provided, and that no new stock of the lessor shall be created, or its capital stock in any manner increased, without the written consent of the lessee.

It is also hereby mutually agreed by the parties hereto, that the city of Portland is the owner of said stock to the amount of at least two million two hundred thousand five hundred dollars (\$2,200,500), on which, at least, the lessee shall pay the rent hereinbefore reserved of one per cent for three years, and of two per cent thereafter. Whether the lessee shall pay the rent aforesaid upon a larger amount of stock belonging to the city of Portland than that above stated, as claimed by said city, shall depend upon subsequent adjudication or agreement of the parties as to the validity of the city's title to an excess of said stock above said amount of two million two hundred thousand five hundred dollars (\$2,200,500).

And if such adjudication or agreement shall be in favor of the claim of the city of Portland to a larger amount of said stock than the sum above stated, the said city, as the holder thereof, shall be entitled to receive all dividends on such excess of stock above two million two hundred thousand five hundred dollars (\$2,200,500), accruing after the date of this lease, precisely as if said stock had been seasonably issued.

Eleventh. The said lessor on its part hereby covenants that it shall and may be lawful to and for the said lessee, its successors and assigns, paying the rent herein reserved and providing for and making all the other payments required by the terms hereof, and keeping and performing all other covenants and agreements by the said lessee to be kept and performed under the terms of this lease, peaceably and quietly to have, hold, use, occupy, and enjoy all and singular the premises hereby demised with the appurtenances for and during the said term of nine hundred ninety-nine years, without any molestation whatsoever from or by said Portland & Ogdensburg Railway or its assigns, or any person or persons lawfully or equitably claiming by, from, or under said company.

Twelfth. The said lessor further covenants that it will, during the term hereby demised, uphold and maintain its own lawful corporate organization, and will do all things on its part required to be done to uphold and save inviolate the charter and franchise thereof, and will from time to time elect and appoint all such officers, agents, and servants as it may be required by law to elect and appoint for the purpose of so maintaining its organization, charter, and franchise, and will invest them with such powers and duties as may be necessary to secure and maintain the corporate efficiency of said company according to law: and the said lessor will not, after the execution of this lease and until the determination thereof, without or beyond the consent of the said lessee, create any new debt against said Portland & Ogdensburg Railway, nor issue or deliver any previously executed evidence of debt for which

the said company shall not have received full value at the date of the execution of this lease, nor voluntarily do any act whereby any obligation or indebtedness shall result against said company, except in accordance with the terms of this lease.

Thirteenth. The said Portland & Ogdensburg Railway hereby transfers and assigns to said lessee all its tools, supplies, cash assets, contracts, notes, accounts, claims, judgments, and other choses in action, causes of action, appeals and rights of appeal which it has, or is entitled to have, either in its own right or through said receiver, including any mortgage bonds of said Portland & Ogdensburg Railroad Company pledged as collateral security; and it hereby constitutes the said lessee its attorney until the determination or forfeiture of this lease, with power in the name of said lessor, but to the use and at the cost of the lessee, to demand, sue for, prosecute, enforce, satisfy, recover, and enjoy all the contracts and other things hereby demised, and in like manner in the name of the said lessor, but at the cost and to the use of the said lessee, to prosecute all causes of action which may hereafter, during the term of this lease, accrue to the said Portland & Ogdensburg Railway against any person or corporation claiming or acting by or under its authority, or authority from it derived, the proceeds thereof to be applied to the operation and improvement of the demised premises.

Fourteenth. It is further agreed by and between said parties, that in order to provide the means to pay off existing debts, liens, and incumbrances on the demised premises, to extend said railroad and improve said railroad property, the lessor, on the request of the lessee, and at its expense, will issue its mortgage bonds to the amount of not exceeding twenty thousand dollars a mile of completed railroad, each bond to bear the guaranty of said lessee that it will pay such bond and the interest thereon as it becomes due, and will join the lessee in a mortgage of the demised premises to secure said bonds. The avails of said bonds are to be used as follows:

1. To pay said receiver's certificates and debts incurred by him, the amounts due trustees as hereinbefore provided, and other liens on said demised premises.

2. To pay the bonds secured by said mortgage dated the first day of November, A. D. 1870, amounting to eight hundred thousand dollars.

3. Not exceeding three hundred thousand dollars for needed improvements on the demised premises and on new construction.

4. The remainder for the construction of such extensions (including branches) or for other permanent improvements as may be, from time to time, constructed or made with the assent of the directors of the lessor, or after a decision of the railroad commissioners that such extension or improvements are necessary and proper to carry out the objects of this indenture according to its true intent and meaning.

And said parties further agree that bonds of a like character and amount and secured in the same manner shall from time to time be issued at the request of said lessee and at its expense, to retire any previous issue of bonds herein authorized, or any part thereof not then retired, but said lessee shall pay the interest on said bonds issued during said term as it becomes due.

Provided, however, that if this lease shall be determined either by entry of the lessor for breach of condition, or by process of law, both the principal of said bonds and all interest accruing after such termination shall be assumed and paid by the lessor.

And all improvements made upon the demised premises, and all extensions of said railroad, and all additional railroads or parts of railroads that may be constructed by the lessee under the charter of the lessor and in its name, shall at once become and remain a portion of the premises covered by this

lease, and shall be managed and controlled by the lessee in all respects precisely as if they were a part of the premises originally demised.

Fifteenth. The said Portland & Ogdensburg Railway hereby further covenants that it will at all times hereafter grant to the said lessee, or its successors, all such access to and inspection of the books, accounts, title deeds, records, files, and vouchers of the said lessor as may be necessary to facilitate the operations and secure the interests of the said lessee under this indenture.

The lessee, keeping and performing all the covenants, agreements, and conditions herein contained to be performed by it, may, at its own cost and expense, do any act in the name of the lessor which, under the charter of the lessor or the laws of said States of Maine and New Hampshire, must be done in the name of the lessor in the maintenance, operation, improvement, or extension of the railroads and railroad property demised by this indenture.

And the said lessor covenants and agrees that it will make any further assurance or conveyance which at any time may be found necessary to secure to said lessee the exercise of its rights, powers, and privileges under this indenture according to its true intent and meaning; and will, at the request of said lessee, authorize and execute any instrument of conveyance of property which under the terms of this indenture the lessee is authorized to sell, and any mortgage which is herein authorized to be given; and will do any act required to be done in its corporate capacity which may be necessary to enable the lessee to extend said railroads or to exercise any other of the rights, powers, and privileges authorized by this indenture or the charter of the lessor or the laws of said States.

If said lessor shall fail to perform any award made under the sixteenth section of this indenture as provided in said section, it shall be lawful for the lessee to suspend the payment of the rent herein reserved until such award shall be performed.

Sixteenth. In case either party to this indenture shall hereafter at any time claim that any of the things herein agreed to be done by the other party are not done, then either party may call upon a board of three disinterested men to be appointed by the chief justice of the Supreme Court of this State, or by the judge of the United States District Court for the District of Maine, or the United States Circuit Court for the First Circuit, upon notice to the other party, which board, or a majority of them, shall hear the parties, and determine the matters at issue, and, if they find thereon against the party against whom claim or complaint is made, shall determine what shall be done by that party, and fix a reasonable time for doing the same, and if said party shall neglect for more than ninety days after the time so fixed to perform the award and finding of said board, or a majority thereof, it shall be deemed a failure by such party to keep and perform the covenants and agreements of this indenture by it to be kept and performed. The party against whom said award is made shall pay the expenses of the hearing and determination.

Neither the stipulations in article ninth nor this article shall take away or diminish any other rights or remedies at law or in equity, to enforce the covenants and agreements herein set forth, or to recover damages resulting from the failure of said lessee to fulfill said covenants and agreements, but said stipulations are additional to all other remedies at law and in equity.

In testimony whereof, the said Portland & Ogdensburg Railway has caused these presents to be subscribed by Samuel J. Anderson, the president thereof duly authorized, and countersigned by its treasurer, and its corporate seal affixed, and the said Maine Central Railroad Company has caused these presents to be subscribed by Arthur Sewall, its president hereto duly

authorized, and countersigned by its treasurer, and its corporate seal to be hereunto affixed the day and year first above written.

THE PORTLAND & OGDENSBURG RAILWAY,

By SAM. J. ANDERSON, *President*. [L. s.]

Countersigned by

JNO. W. DANA,

Treasurer Portland & Ogdensburg Railway.

THE MAINE CENTRAL RAILROAD COMPANY,

By ARTHUR SEWALL, *President*. [L. s.]

Countersigned by

J. A. LINS COTT,

Treasurer Maine Central Railroad Company.

Signed, sealed, and delivered in presence of

JOSIAH H. DRUMMOND.

DAVID W. SNOW.

STATE OF MAINE.

CUMBERLAND, SS. August 20, 1888. Then personally appeared Samuel J. Anderson, in his capacity of president of the Portland & Ogdensburg Railway, and acknowledged the foregoing instrument by him subscribed to be the free act and deed of said corporation.

Before me,

JOSIAH H. DRUMMOND, *Justice of the Peace.*

STATE OF MAINE.

CUMBERLAND, SS. August 20, 1888. Then personally appeared Arthur Sewall, in his capacity of president of the Maine Central Railroad Company, and acknowledged the foregoing instrument by him subscribed to be the free act and deed of said corporation.

Before me,

JOSIAH H. DRUMMOND, *Justice of the Peace.*

Ratified and confirmed by the Portland & Ogdensburg Railway, August 22, 1888.

Ratified and confirmed by the Maine Central Railroad Company, August 23, 1888.

Attest:

JOSIAH H. DRUMMOND, *Clerk M. C. R. R. Co.*

CONTRACT

BETWEEN THE CONCORD RAILROAD CORPORATION AND THE CONCORD & PORTSMOUTH RAILROAD.

This indenture, made this third day of April, 1861, between the Concord Railroad Corporation of the one part and the Concord & Portsmouth Railroad of the other part, both being corporations duly established within and by the State of New Hampshire,

Witnesseth, that whereas the said roads are so situated that they may be operated in connection with each other by the common use of the loco-

tives and cars of the roads and one machine shop for repairs, to the great saving of expense, and greater certainty and efficiency in the running of trains for the mutual benefit of the roads, and better security of their investments, as well as for the convenience and interest of the public; now, therefore, for the promotion of these and other objects of mutual advantage to all parties concerned, said parties hereby covenant and agree to enter into a business contract and terms of connection to and with each other, agreeably to the several stipulations and conditions hereinafter mentioned.

ARTICLE 1. The Concord & Portsmouth Railroad hereby agrees to deliver to and place in charge of said Concord Railroad Corporation all the lands, right of way, and tracks thereon, with the station buildings and furniture, machine shops and fixtures, tools, rolling stock, cars, engines, engine houses, turn-tables and dwelling-houses, belonging to said Concord & Portsmouth Railroad, to be holden by said Concord Railroad for and during the time hereinafter specified.

ART. 2. Said Concord Railroad shall maintain and operate said Concord & Portsmouth Railroad during the continuance of this agreement, and any renewal thereof, in all respects as said Concord & Portsmouth Railroad is by law required to do; shall pay all taxes duly assessed against said corporation, and shall indemnify and save harmless the said Concord & Portsmouth Railroad from any and all claims for damages on account of anything connected with the proper care, repairs, and operation of said road as is hereinafter agreed.

ART. 3. The Concord Railroad shall receive in full, for the fulfillment of the foregoing obligations and conditions, the entire receipts derived from the management and operation of the said Concord & Portsmouth road during the continuance of this contract, excepting therefrom the sum of eighteen thousand dollars in each year, which amount the Concord Railroad agree to pay to said Concord & Portsmouth Railroad in semi-annual payments of nine thousand dollars each, from the commencement of this contract.

ART. 4. At the expiration of this contract the land, tracks, buildings, and fixtures belonging to the Concord & Portsmouth Railroad shall be returned to said road by said Concord Railroad in as good order and condition as when received, and also the rolling stock, cars, engines, tools, and furniture, to the amount of \$52,219.23, belonging to the Concord & Portsmouth Railroad as they were appraised by Jonathan Adams, Samuel Nott, and George S. Griggs at the commencement of the contract made with said road by the Concord Railroad on the 11th of September, 1858.

ART. 5. The directors, treasurer, and clerk of said Concord & Portsmouth Railroad when on the business thereof, and the stockholders to and from the annual meetings of the corporation, shall be allowed to pass over said road free of charge during the continuance of this contract.

ART. 6. This contract shall take effect at the termination of the contract now existing between said Concord & Portsmouth road and the Concord road, viz., on the 13th of September, 1863, and continue for and during the term of ninety-nine years therefrom, provided that it shall be in the power of the Concord Railroad to terminate the same should a branch railroad be constructed from the Concord & Portsmouth road to Manchester, Hooksett, or any other part of the Concord Railroad, unless the same be done by mutual agreement, and arrangement is made between said road and the Concord & Portsmouth road as to the running and operation of said branch or branches.

ART. 7. This indenture shall be construed as a business contract solely, and not as a lease of one road to the other, or as a union of their corporate powers or privileges, each party retaining to itself all of its chartered rights and liabilities and the power to sue and liability to be sued in its own sepa-

rate name and capacity in the same manner and to the same extent as heretofore, excepting that so far as regards these parties the rights and liabilities of one with the other shall be determined by this agreement.

ART. 8. Any controversies arising at any time as to the true intent and meaning of this contract, or its proper fulfillment, shall be submitted to the decision of arbitrators mutually agreed upon by said parties, or in case of their inability to agree on such arbitrators, shall be submitted to the three senior justices of the Supreme Judicial Court of New Hampshire, or to such arbitrators as they shall appoint, and the decision of said persons or arbitrators, or a majority of them, shall be final and complete between the parties.

In witness of which said several covenants and agreements the Concord & Portsmouth Railroad and the Concord Railroad Corporation, by their agents duly authorized, have hereunto interchangeably affixed the names and seals of said corporations this third day of April, 1861, on the opposite side hereof.

CONCORD & PORTSMOUTH RAILROAD,

By STEPHEN KENRICK,
CHARLES L. FROST,
SAMUEL P. DOW,
JOSEPH BLAKE,
E. A. STRAW,

Directors.

CONCORD RAILROAD CORPORATION,

By N. G. UPHAM,
C. H. PEASLEE,
J. STICKNEY,

Committee.

LEASE.

SUNCOOK VALLEY RAILROAD TO CONCORD AND MANCHESTER &
LAWRENCE RAILROADS.

This indenture, made and concluded this eleventh day of March, A. D. 1870, by and between the Suncook Valley Railroad as the first party, and the Concord Railroad Corporation and the Manchester & Lawrence Railroad as the second party, both said parties being corporations duly established in the State of New Hampshire, witnesseth:

That said first party, in consideration of the rent and covenants herein-after mentioned, to be paid and performed by said second party, does hereby let, lease, and demise to said second party all the railroad of said first party, as heretofore laid out and now in main part constructed and used, from its commencement on the southerly side of the bridge over Suncook river, on the Hooksett Branch Railroad, so called, now operated by said second party, in Allenstown, through said Allenstown, Epsom, Chichester, and Pittsfield, to its terminus on the northerly side of Suncook river, in the village of Pittsfield, all in the county of Merrimack, and State aforesaid, together with all the lands, buildings, fixtures, and furniture of said first party connected with said railroad, and all the rights, franchises, privileges, and appurtenances thereunto appertaining and belonging, to have and to hold the same to said second party for and during the term of forty-two years from and after the first day of January, A. D. 1870. And said second party does hereby covenant and agree, to and with said first party, that it will pay the sum of four-

teen thousand and four hundred dollars as the yearly rent for said premises, payable in semi-annual instalments of \$7,200 each, as hereafter provided; and in addition thereto will pay and discharge as they shall become due any and all taxes of every kind duly assessed against said first party or its stock hereinafter mentioned, on account of any of the property aforesaid, or on account of any receipts or income of any kind, including the rent aforesaid from or on account of said property, during the continuance of this lease. And further, that it will at all times during the continuance of this lease, at its own charge and expense, maintain and operate said railroad in all respects as said first party would by law be bound to do, and will indemnify and save harmless at all times said first party from all claims for damage or expenses on account of any default in the proper construction and fencing, or in the proper care, repair, and operation of said railroad during the continuance of this lease; and at the termination in any way of this lease, will peaceably surrender and deliver up to said first party said railroad and property in as good order and condition as the same now are, or may at any time be put into by said first party, or at its expense.

The aforesaid semi-annual instalments of rent, due on the first day of July and January in each year during the continuance of this lease, shall be paid as follows: The treasurer of said first party shall, when each respective semi-annual instalment becomes due as aforesaid, furnish to said second party a proper list of the holders of the stock of said first party amounting to the par value of \$240,000, and which, by the vote of the directors of said first party of March 11, 1870, is declared and made exclusively entitled to dividends from said rents, who are entitled to dividend from said instalment and the number of shares of said stock on which each said stockholder is entitled to such dividend; and said second party shall divide and pay over said instalment to said stockholders respectively, according to said number of shares of each.

In addition to the annual rent above named, the said second party will, at the expiration of each year during the continuance of this lease, pay over to the treasurer of the first party the further sum of three hundred dollars for its own use and benefit. The directors, clerk, and treasurer of said first party, and the stockholders thereof, when necessary for attendance at the corporate meetings, shall be passed free at their own risks over said railroad while operated by said second party under this lease.

At least one train each way daily, Sundays and extraordinary casualties excepted, shall be run over said railroad, and so as to make connection with trains on the Concord Railroad passing in the same direction, without unreasonable delay at Suncook or Hooksett.

Nothing herein contained is to preclude said first party, whenever it may desire, from extending and constructing its railroad from a point in Allentown on the portion above described, on the town line between Allentown and Hooksett, southerly, on the easterly side of Merrimack river, over the route now laid out to the line of said Concord Railroad, near the homestead of Samuel Head, in Hooksett, or over any other route duly located within the limits of the charter of said first party, without prejudice to any rights of the parties hereto under this indenture; *provided, however*, that in case of any such extension the said second party shall have the right, if it shall so elect within thirty days after notice by the first party to it of the completion of said extension, to the use and operation of said extended road for and during the then remaining unexpired portion of the term of forty-two years aforesaid, with all the same rights, and subject to all the same liabilities and duties, including payment of taxes, with reference thereto, as hereinbefore provided with reference to the railroad included in this indenture, and shall

also pay an addition to the annual rent hereinbefore specified, equal to six per cent on the actual cost of said extended road, payable in equal semi-annual instalments at the same times in each year thereafter as hereinbefore provided for payments of the other rent aforesaid.

And said first party, at the request of said second party, shall make and execute with it all instruments necessary and proper to carry into legal effect the provisions of this indenture relative to said extended road, according to their true meaning and intent.

The interest of said Concord Railroad Corporation and of said Manchester & Lawrence Railroad respectively, as between themselves in all the matters herein contained and provided for, shall be in proportion of three fifths to the former and two fifths to the latter; and all rights, benefits, liabilities, and burdens at any time hereafter arising, or being in any way on account of said matters, shall, as between themselves, be shared by them in that proportion. No officer or stockholder of said Suncook Valley Railroad shall be held individually for any of the contracts and liabilities of said corporation herein contained and provided for.

In witness of all which, the said parties have hereunto set their corporate names and seals by their agents thereto duly authorized, this eleventh day of March, 1870.

SUNCOOK VALLEY RAILROAD,

By S. N. BELL, *President*. [L. S.]

E. W. HARRINGTON, *Treasurer*.

CONCORD RAILROAD CORPORATION,

By J. MINOT, *President*. [L. S.]

NATHAN PARKER, *Treasurer*.

MANCHESTER & LAWRENCE RAILROAD,

By ASA FOWLER, *President*. [L. S.]

E. W. HARRINGTON, *Treasurer*.

Signed, sealed, and delivered in presence of

CHARLES E. BALCH.

E. H. PAINE.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, SS. March 16, 1870. Then personally appearing, the above-named Suncook Valley Railroad, by its said agents, acknowledged the foregoing instrument to be its voluntary act and deed.

Before me,

CHARLES E. BALCH, *Justice of the Peace*.

DEED

OF MANCHESTER & KEENE RAILROAD TO SAMUEL W. HALE BY TRUSTEES UNDER MORTGAGE.

KNOW ALL MEN BY THESE PRESENTS: That whereas the Manchester & Keene Railroad, a corporation duly established by law in the State of New Hampshire, on the nineteenth day of September, 1876, executed a mortgage of the Manchester & Keene Railroad, with all its rights, privileges, appurtenances, and franchises, described as follows, to wit: "Beginning at a point in

the main track of the Cheshire Railroad 393 feet north, 37 degrees west, from the northerly side of Water street, and thence running easterly through the towns of Roxbury, Marlborough, Harrisville, Hancock, and Bennington to Greenfield, in our county of Hillsborough, as it has already been located and as it may hereafter be changed, and being six rods in width, together with all the rights, powers, and privileges to any extension of said railroad that may hereafter be made under its charter and the laws of the State from said Greenfield easterly to or near Parker's Station, on the North Weare Railroad, or to any other point designated in the charter of said Manchester & Keene Railroad in completing the entire line thereof, together with all the buildings, fixtures, and appurtenances that now or hereafter may be annexed and belong to said rights and premises," to Farnum F. Lane, Alfred T. Colony, and Obed G. Dort, and their successors, in trust, to secure the payment of certain bonds therein described and for the purposes and on the conditions set forth in said mortgage, which mortgage is duly recorded in the Registry of Deeds for Cheshire county, Vol. 254, page 424, and in the Registry of Deeds for Hillsborough county, Vol. 432, page 352.

And, whereas, said Manchester & Keene Railroad, on the twenty-ninth day of May, 1873, executed a mortgage of all the real and personal property and franchises of every kind or description belonging to said Manchester & Keene Railroad, or hereafter to be acquired by the same, including the railroad of said Manchester & Keene Railroad, as it is now located, or may hereafter be located, beginning at a point in the main track of the Cheshire Railroad in Keene, 393 feet north, 37 degrees west, from the northerly side of Water street, thence running easterly through the towns of Roxbury, Marlborough, Harrisville, Hancock, and Bennington to Greenfield, in the county of Hillsborough, being six rods in width, together with all the rights and privileges under any extension of said railroad hereafter made in an easterly direction from said town of Greenfield towards Goffstown or Manchester; also all lands, road-beds, stations, depots, grounds, buildings, rights, and easements whatsoever now owned or hereafter to be acquired by said Manchester & Keene Railroad; also all tracks, ties, rails, bridges, or structures whatsoever of said Manchester & Keene Railroad; also all its rolling stock, tools, implements, materials, and supplies, or such as shall hereafter be acquired by said Manchester & Keene Railroad; also all the tools, income, and profits derivable from said property and franchises, and the right to collect, receive, and recover the same, to Farnum F. Lane, J. Wilson White, and Cornelius V. Dearborn, and the survivor or survivors of them, their successors and assigns, in trust, to secure the payment of said bonds therein described, and for the purposes and on the conditions set forth in said mortgage, which mortgage is duly recorded in the Registry of Deeds for Cheshire county and in the Registry of Deeds for Hillsborough county.

And said mortgage contained among other things the following provisions: "This indenture of mortgage or deed of trust is made upon the following conditions, covenants, and agreements entered into by and between the parties thereto as follows, to wit:

"Secondly, in case any default or defaults in the payment of said notes or bonds, or the interest thereon, as it becomes payable, shall occur and continue at any time or times for a period of sixty days, it shall be lawful for said trustees, or any two of them, or their successors, to take possession of said railroad and property herein conveyed, and said trustees, or any two of them, shall thereupon have full power and authority to operate said railroad, as fully as said corporation itself might operate the same, and to receive the earnings thereof, and after providing and paying all expenses

of working and operating said railroad and keeping the same in condition safe and suitable for business, and paying all expenses and charges whatsoever necessary and proper to enable them to retain, manage, and control said property or discharge any taxes or liens thereon, to apply any balance or net proceeds to the purposes of this trust, and in case any such default or breach of condition shall continue at any time for a period of six months, and the holders of a majority of said notes or bonds then outstanding shall in writing so request of said trustees, the trustees are authorized and empowered to determine and declare the principal of said notes or bonds to be payable on demand, and thereupon said principal shall become payable forthwith, and to make demand upon said corporation for payment of the same, with all interest due thereon, and in case said corporation shall fail to pay said notes or bonds, both principal and interest, within ten days after such demand, then the said trustees, their successors and assigns, are hereby authorized and empowered as the attorneys of said corporation to offer said railroad and all the property and franchises of said corporation for sale to the highest bidder at public auction, and upon such sale to make, execute, and deliver to the purchaser or purchasers a good and sufficient deed thereof, either as the attorneys of said party of the first part or under their own hands and seals. *Provided, however,* that at least one month's notice of such intended sale shall be given by publishing an advertisement thereof in one newspaper at least published in each of the counties of Cheshire and Hillsborough, and in one newspaper published in Boston, Mass., and such sale or sales may be notified and held as often as any breach of condition of this indenture shall occur until such sale and conveyance shall be actually and effectually made and completed, and any sale and conveyance made as aforesaid of said railroad and property shall be a perpetual bar both in law and equity against said party of the first part and any others claiming said premises, property, or franchises, or any part thereof, from or under said party of the first part under any title arising subsequently to the date of these presents."

And, whereas, after the execution of said first mortgage, and before the execution of said second mortgage, one of said trustees, to wit, Obed G. Dort, has deceased, and another of said trustees, to wit, Alfred T. Colony, has resigned, and said bonds described in said mortgages, and sold or otherwise disposed of by said railroad, and the debts secured thereby, are still due and unpaid and said mortgages not discharged or released. And, whereas, on the twenty-second day of April, 1880, Samuel W. Hale and others, plaintiffs, filed their bill in equity in the clerk's office of the Supreme Court of New Hampshire for Hillsborough county, against said Manchester & Keene Railroad, said Dearborn and said White and others, defendants, praying for the removal of said Dearborn and White as such trustees, and the appointment of other disinterested trustees in their stead, and for foreclosure of said mortgages, and for such other and further relief as may be just and equitable, and service of said bill having been made thereupon after hearing and consideration by said court, ordered in said bill in equity that said Dearborn and said White, trustees as aforesaid, be removed from office as such trustees, and Lane, trustee under said mortgages, having resigned, James A. Weston, of Manchester, in said county of Hillsborough, George A. Ramsdell, of Nashua, in said county of Hillsborough, and John Kimball, of Concord, in the county of Merrimack, were appointed trustees under said mortgages in place of said Dearborn, White, and Lane, former trustees, and the new trustees, Weston, Ramsdell, and Kimball, are authorized to act as trustees under the order made in the case dated July 27, 1880, and all power, authority, rights, and duties of said former trustees are transferred to said new trustees, said order of July 27, 1880, being that Dearborn, White, and Lane, trustees under the mortgage

of said Manchester & Keene Railroad, are authorized to take immediate possession of said railroad for the purposes of operating the whole of said road between Greenfield and Keene as such trustees under said mortgage, and under section 6, chapter 165, of General Laws, without requiring indemnity for running any part of said road. Said trustees will keep an exact account of receipts, expenses, profits, and losses to be hereafter adjusted by the court in this case; all profits and losses to be subject to the order of the court. And at the May Term, 1881, of said Supreme Court it was adjudged and decreed that a default and breach of condition of said mortgages had taken place by non-payment of the interest on said bonds for six months and upwards, and that said railroad was insolvent, and that a case had arisen for the foreclosure of said mortgages by sale of said railroad, its property and franchises, at auction, as in said mortgages provided, and that said new trustees proceed to foreclose said mortgages under the authority to the trustees therein named and their successors in said mortgages contained. And on the third day of September the holders of the majority of the bonds issued under said mortgages in writing did request of said trustees, the interest on said bonds being unpaid for more than six months, to proceed in accordance with the provisions of said mortgages to determine and declare the principal amounts of such bonds so held by the parties applying, to be payable on demand, and the same to become thereupon, in accordance with said mortgages, payable forthwith, to make demand on said Manchester & Keene Railroad for the payment of said principal amounts of said bonds so held by them, with all interest due thereon, and in case said Manchester & Keene Railroad shall fail to pay said bonds, both principal and interest, within ten days after such demand, then to proceed to sell at public auction all the property and franchises of said Manchester & Keene Railroad in accordance with the terms and provisions of said mortgages. And said trustees did thereupon determine and declare that the principal of said bonds be payable on demand, and thereupon said principal became payable forthwith. And on the sixth day of September, 1881, said trustees made a demand on said railroad for the payment of such bonds, with all interest due thereon, and the same not having been paid, both principal and interest, within ten days after such demand, on the twenty-first day of September, 1881, advertised the property described in said mortgages for sale at public auction on the 26th day of October, 1881, at twelve o'clock noon, at the Cheshire Hotel in Keene, to the highest bidder, by publishing an advertisement thereof as required by said mortgage, subject to the terms of sale as contained in said advertisement and as announced by the auctioneer at said time and place of sale, and on said day at said time and place sold at public auction said property described in said mortgages to Samuel W. Hale, of Keene, N. H., he being the highest bidder therefor, for the sum of one hundred twenty-five thousand dollars over and above the incumbrances and liens thereon, which liens were estimated at fifty-seven thousand four hundred and thirty-six dollars eighty-seven cents, and which liens and any other existing liens thereon said purchaser assumes and agrees to pay; also subject to any set-off in favor of Thomas E. Hatch as assignee of one E. L. Barrett, and to the result of the litigation on a bill in equity in the Circuit Court of the United States in favor of the Boston & Lowell Railroad Corporation (Alexander Bruce and John Shepherd against the Manchester & Keene Railroad, the present and former trustees of its bonds, and others), the proceedings of said trustees, and the sale made by them, to be subject to examination and ratification by said Supreme Court, and report of such proceedings and sale having been made to said Supreme Court at the September Term, 1881, to wit, on the ninth day of November, 1881, and an order having been duly made and served,

directed to all parties interested, to appear at said court to show cause on the 22d day of November, 1881, why said proceedings and sale should not be ratified and confirmed, and after due notice and hearing it was by said court ordered that said proceedings and sale be ratified and confirmed, and that said trustees be authorized to execute a quitclaim deed in accordance with the terms of sale. And the defendants in said bill in equity, to wit, said Manchester & Keene Railroad and the Nashua & Lowell Railroad, having appeared and filed exceptions to said order, and such exceptions at said term of court having been transferred to the law term of said Supreme Court, and at the December Law Term, 1881, of said Supreme Court, said exceptions having been overruled and said sale having been ratified and confirmed by said Supreme Court;

Now, therefore, we, James A. Weston, George A. Ramsdell, and John Kimball, trustees as aforesaid, in our said capacity as such trustees, and under the authority contained in said second mortgage, for and in consideration of one hundred and twenty-five thousand dollars to us paid by Samuel W. Hale, of Keene, in the county of Cheshire, and State of New Hampshire, the receipt whereof is acknowledged, do, in our said capacity as said trustees, remise, release, and quitclaim unto said Samuel W. Hale, his heirs and assigns, all the right, title, and interest the said trustees have in their said capacity as trustees, and under said mortgages, in and to the Manchester & Keene Railroad, its property real and personal, and franchises of every kind and description, and all its rights and appurtenances whatsoever, as set forth and described in said mortgages, subject to the liens for receivers, expenditures, and interest thereon for deficit in operating the road for the year ending September 1, 1881, and for deficit in operating the road until the delivery of this deed and possession of the said railroad, and interest on the same until such deficit is paid, and to the claims of the former trustees and of the present trustees for services and expenses for counsel fees and expenses of sale and any other existing liens. Also subject to claims for amounts due for land damages and to the set-off in favor of one Thomas E. Hatch, assignee of E. L. Barrett, to satisfy a contractor's lien, and to the result of the litigation in the bill in equity in favor of the Boston & Lowell Railroad Corporation, and others as aforesaid, against said Manchester & Keene Railroad, the present trustees, and others, all which liens are to be paid and satisfied by said grantee, over and above the amount bid by him at said sale, so far as the same may be legally enforced;

To have and hold said remised premises, with all the rights, privileges, and appurtenances thereunto belonging, and subject to the conditions and limitations herein set forth, to the said Hale, his heirs and assigns forever.

In witness whereof, in our said capacity as trustees, we have hereunto set our hands and seals this 26th day of October, 1881.

JAMES A. WESTON.	[Seal.]
GEORGE A. RAMSDELL.	[Seal.]
JOHN KIMBALL.	[Seal.]

Signed, sealed, and delivered in presence of us:

[Signed] S. N. BELL.
JOHN H. GEORGE.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. May 14, 1884. Then personally appearing the said James A. Weston, George A. Ramsdell, and John Kimball in their said capacity as trustees aforesaid acknowledged the above instrument to be their free act and deed.

Before me,
[Signed] C. E. A. BARTLETT, *Justice of the Peace.*

AGREEMENT

BETWEEN SAMUEL W. HALE AND OTHERS, AND THE CONCORD RAILROAD CORPORATION AND THE BOSTON & LOWELL RAILROAD CORPORATION.

Whereas, James A. Weston, George A. Ramsdell, and John Kimball, trustees of the mortgagees of the Manchester & Keene Railroad, appointed by the Supreme Court of New Hampshire, on the 26th of October, 1881, sold said railroad, its property and franchises, at public auction, under the decree of said court and under the authority for that purpose in said mortgages, to Samuel W. Hale, of Keene, on the terms set forth at said sale;

And, whereas, said Hale and others, holders of said bonds, have sold and conveyed the bonds held by them to trustees for the use and benefit of the Boston & Lowell Railroad Corporation and the Concord Railroad Corporation in equal shares, and said railroads have paid said Hale, and others, the prior liens existing on said premises, and have assumed the payment of any further liens that may arise until the sale of said railroad, its property and franchises, shall be fully completed;

And, whereas, said corporations have, under the directions of said trustees, assumed the operation of said railroad and entered into possession of its property and franchises;

And, whereas, among other things, one of the terms of said sale was that the same should be ratified and confirmed by said court; and application has been made at the September term, 1881, for Hillsborough county therefor, and a decree has been made at said term confirming said sale, and exceptions have been filed against such decree by the Nashua & Lowell Railroad Corporation and the Manchester & Keene Railroad, defendants in the suit in which such application was made, which exceptions are now pending in the law term of said court, and undetermined, and said sale has not yet been fully confirmed by said court;

Said Hale agrees that he will, and his heirs shall, whenever such sale shall be so confirmed by said court, accept the deed of said Manchester & Keene Railroad, its property and franchises, from said trustees of said mortgagees, and will thereupon by like deed convey the said railroad, its property and franchises, to said Boston & Lowell Railroad Corporation and said Concord Railroad Corporation as aforesaid, or to such party as they may each for its own share direct, or will hold the same in trust for said corporations at the option of said corporations, and will thereafterwards convey the same as they may direct as aforesaid.

And said corporations agree that whenever said railroad, its property and franchises, so sold, shall be conveyed to said Hale, and such sale confirmed as aforesaid, that they will severally accept a deed of the same from said Hale for their share as aforesaid, or will consent that said Hale shall convey the same to trustees to be by them selected for the use and benefit of said corporations as aforesaid, or will accept from said Hale a declaration of trust for the use and benefit of said corporations, with provision that said railroad, its property and franchises, shall be conveyed to them as aforesaid, or to such party as they may direct, whenever the same shall be deemed by the directors thereof to be for the interest of said corporations.

And in case said railroad, its property and franchises, shall be so held in trust by said Hale at their request that they will severally, so far as their own shares are concerned, indemnify and save harmless said Hale and his heirs from all loss, cost, damage, trouble, and expense by reason of his holding the title of said railroad, its property and franchises, in trust for them as aforesaid.

Witness the hand of said Hale and of said corporations, by their committee for that purpose duly authorized, the 16th day of January, 1882.

[Signed]

S. W. HALE.

CONCORD RAILROAD CORPORATION,

By HY C. SHERBURNE, *General Manager*.

BOSTON & LOWELL RAILROAD CORPORATION,

By HY C. SHERBURNE, *General Manager*.

ASSIGNMENT.

HALE AND OTHERS TO BOSTON & LOWELL AND CONCORD RAILROADS.

SUPREME COURT.

HILLSBOROUGH, SS.

JANUARY TERM, 1882.

Samuel W. Hale, et al., v. Manchester & Keene Railroad, and others.

Whereas, the undersigned have heretofore brought their bill in equity in the Supreme Court for Hillsborough county against the Manchester & Keene Railroad for foreclosure of the mortgage on said road, and for sale of the same as in said mortgage provided, and for other relief as set out in said bill;

And, whereas, the undersigned have sold the mortgage bonds of said railroad, held by them, to the Boston & Lowell Railroad Corporation and the Concord Railroad Corporation in equal shares, to enable them to complete the purchase of said railroad, its property and franchises, as sold by the trustees of said bonds on the 26th of October, 1881, to Samuel W. Hale, from said Hale, and said bonds at the request of said corporations have been conveyed to trustees to be held for the use and benefit of said corporations;

Therefore we do hereby assign and set over to said Boston & Lowell Railroad Corporation, and said Concord Railroad Corporation, and to such trustees for the use and benefit of said corporations, the said bill in equity, and all benefit and advantage to be derived therefrom, and hereby authorize them and said trustees for their use and benefit to prosecute said bill in equity at their own expense and without charge or expense to us, or either of us, hereafter, to final judgment and decree for their own benefit, and authorize them to receive from the trustees of said mortgage bonds any and all sums that may be decreed to be paid under said foreclosure, to be paid to us, as the holders of said bonds or the parties to whom liens prior to said mortgages are due, and to do and cause to be done in said bill all things that they may deem necessary to complete said foreclosure and sale, and obtain such relief as they may be entitled to under said bill.

And said corporations agree to save said Hale, and Henry Colony, William P. Frye, and John Y. Scruton harmless from all loss, cost, damage, trouble, and expense occasioned by the further prosecution of said bill in equity.

Witness the hands of said parties and of said corporations, by their committee for that purpose duly authorized, the 16th day of January, 1882.

[Signed]

SAMUEL W. HALE,

HENRY COLONY,

WILLIAM P. FRYE,

JOHN Y. SCRUTON,

By WILLIAM E. CHANDLER,

Their Attorney in said suit.

CONCORD RAILROAD CORPORATION,

By HY C. SHERBURNE, *General Manager*.

BOSTON & LOWELL RAILROAD CORPORATION,

By HY C. SHERBURNE, *General Manager*.

DECREE

OF THE SUPREME COURT CONFIRMING THE SALE AND DEED OF THE
MANCHESTER & KEENE RAILROAD TO HALE BY WESTON, RAMS-
DELL, AND KIMBALL, TRUSTEES, WHICH IS AS FOLLOWS.

SUPREME COURT.

HILLSBOROUGH, SS.

SEPTEMBER TERM, 1881.

Samuel W. Hale, et al., v. Manchester & Keene Railroad.

At a hearing upon the matter of the report of the trustees in said cause, this twenty-second day of November, 1881, upon the application of the plaintiffs for an examination of the accounts of such trustees, and a confirmation of their proceedings relative to the foreclosure and sale of the Manchester & Keene Railroad, upon consideration of the above report as filed in said court, notice of the application having been given according to the order of the court,

It is ordered, adjudged, and decreed that the accounts of said trustees of the receipts and expenditures made under their direction be allowed, and that the proceedings of said trustees in reference to such foreclosure and sale be ratified and confirmed, and that said trustees be authorized to execute a quitclaim deed, in accordance with the terms of the sale as set out in said report, and to deliver possession of said road to the purchasers at said sale, and that the further consideration of the accounts of the trustees to the first of December, 1881, and the allowance of any unsettled accounts and claims, be postponed to the January term of this Court.

LEWIS W. CLARK, *Presiding Justice.*

November 22, 1881.

SUPREME COURT.

HILLSBOROUGH, SS.

AFTER MARCH TERM, 1884.

Samuel W. Hale, et al., v. Nashua & Lowell R. R., Manchester & Keene R. R., et al.

IN EQUITY.

Upon the report of James A. Weston, George A. Ramsdell, and John Kimball, trustees under the mortgages on the said Manchester & Keene Railroad filed August 14, 1884,

It is ordered, decreed, and adjudged that the sale, conveyance, and delivery of the title and possession of the Manchester & Keene Railroad, its property and franchises, by said trustees to Samuel W. Hale be and the same is approved, ratified, and affirmed.

And it is further ordered, adjudged, and decreed that all receipts, and all payments, expenditures, and disbursements, and all contracts, agreements, and arrangements entered into or made by said trustees for the purpose of operating said Manchester & Keene Railroad, and all settlements made in relation thereto, and all acts done as set forth in their report filed August 14, 1884, be and the same are ratified, approved, and affirmed.

And it is further ordered, decreed, and adjudged that a distribution of the funds received by said trustees as the proceeds of said sale of the Manchester & Keene Railroad, its property and franchises, and the item of interest as set forth in their said report, be forthwith made, and they, the said trustees, are authorized and directed to pay to the owners and holders of said bonds upon their presentation and surrender the sum ratably due and belonging to them.

LEWIS W. CLARK, *Presiding Justice.*

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. I, G. A. Ramsdell, clerk of the Supreme Court of the State of New Hampshire for the county of Hillsborough, do hereby certify that the foregoing are true copies of the decrees made by said Court relative to the foreclosure of the mortgages upon and the sale of the Manchester & Keene Railroad, in the suit Hale and others against the said railroad and others.

Witness my hand and the seal of said Supreme Court, this 25th day of of December, A. D. 1885.

[Seal.]

G. A. RAMSDELL, *Clerk.*

DEED.

SAMUEL W. HALE TO BOSTON & LOWELL RAILROAD.

KNOW ALL MEN BY THESE PRESENTS: That I, Samuel W. Hale, of Keene, in the county of Cheshire and State of New Hampshire, for and in consideration of sixty-two thousand five hundred dollars to me paid by the Boston & Lowell Railroad Corporation, a corporation duly established by and existing under the laws of the Commonwealth of Massachusetts, the payment whereof I hereby acknowledge, have granted, bargained, sold, and conveyed, and do by these presents for myself and my heirs grant, bargain, sell, and convey unto the said Boston & Lowell Railroad Corporation, its successors and assigns forever, one undivided half part and interest in and of the Manchester & Keene Railroad, with all the real and personal estate, appurtenances, and franchises of every kind and description thereunto belonging, and all the rights, powers, and privileges to any extension of said railroad that may hereafter be made under its charter and the laws of said State of New Hampshire, from Greenfield, in the county of Hillsborough, easterly to or near Parker's Station on the North Weare Railroad, or to any point named in the charter of said Manchester & Keene Railroad in completing the entire line thereof, and all buildings, depots, stations, road-beds, depot grounds, rights, easements, and privileges, and all tracks, ties and rails, bridges and other structures, and all rolling stock, tools, implements, materials, and supplies, and all tolls, incomes, and profits derivable from said property and franchises, with the right to collect and receive the same; said described premises, property, appurtenances, and franchises being the same as conveyed to said Hale, grantor herein, by James A. Weston, George A. Ramsdell, and John Kimball, trustees under the mortgages upon said Manchester & Keene Railroad, by their deed in said capacity, dated on the 14th day of May, 1884, to which reference is hereby made for more particular description, and subject to all the liens, incumbrances, conditions, and limitations named and contained therein;

To have and to hold the above described premises, property, franchises, rights, privileges, powers, and appurtenances as aforesaid to said Boston & Lowell Railroad Corporation, its successors and assigns forever.

In witness whereof, I have hereunto set my hand and seal this 14th day of May, 1884.

[Signed]

SAMUEL W. HALE. [Seal.]

Signed, sealed, and delivered in presence of us:

[Signed] S. N. BELL.

JOHN H. GEORGE.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. May 14, 1884. Then personally appearing, the above-named Samuel W. Hale duly acknowledged the foregoing instrument to be his free act and deed.

Before me,

[Signed] C. E. A. BARTLETT, *Justice of the Peace.*

DEED.

SAMUEL W. HALE TO CONCORD RAILROAD.

KNOW ALL MEN BY THESE PRESENTS: That I, Samuel W. Hale, of Keene, in the county of Cheshire and State of New Hampshire, for and in consideration of sixty-two thousand five hundred dollars to me paid by the Concord Railroad Corporation, a corporation duly established by and existing under the laws of said State, the payment whereof I hereby acknowledge, have granted, bargained, sold, and conveyed, and do by these presents for myself and my heirs grant, bargain, sell, and convey unto the said Concord Railroad Corporation, its successors and assigns forever, one undivided half part and interest in and of the Manchester & Keene Railroad, with all the real and personal estate, appurtenances, and franchises of every kind and description thereunto belonging, and all the right, powers, and privileges to any extension of said railroad that may hereafter be made under its charter and the laws of said State from Greenfield, in the county of Hillsborough, easterly to or near Parker's Station on the North Weare Railroad, or to any point named in the charter of said Manchester & Keene Railroad, in completing the entire line thereof, and all buildings, depots, stations, road-beds, depot grounds, rights, easements, and privileges, and all tracks, ties and rails, bridges and other structures, and all rolling stock, tools, implements, materials, and supplies, and all tolls, incomes, and profits derivable from said property and franchises with the right to collect and receive the same; said described premises, property, appurtenances, and franchises being the same as conveyed to said Hale, grantor herein, by James A. Weston, George A. Ramsdell, and John Kimball, trustees under the mortgages upon said Manchester & Keene Railroad, by their deed in said capacity, dated on the 14th day of May, 1884, to which reference is hereby made for more particular description, and subject to all the liens, incumbrances, conditions, and limitations named and contained therein;

To have and to hold the above described premises, property, franchises, rights, privileges, powers, and appurtenances as aforesaid to said Concord Railroad Corporation, its successors and assigns forever.

In witness whereof, I have hereunto set my hand and seal this 14th day of May, 1884.

[Signed] SAMUEL W. HALE. [Seal.]

Signed, sealed, and delivered in the presence of us:

S. N. BELL.

JOHN H. GEORGE.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. May 14, 1884. Then personally appearing, the above-named Samuel W. Hale duly acknowledged the foregoing instrument to be his free act and deed.

Before me,

C. E. A. BARTLETT, *Justice of the Peace.*

AGREEMENT

BETWEEN THE CONCORD RAILROAD CORPORATION AND THE BOSTON & LOWELL RAILROAD CORPORATION, WITH REFERENCE TO THE OPERATION OF THE ROAD OF THE MANCHESTER & KEENE RAILROAD BY THE BOSTON & LOWELL RAILROAD CORPORATION.

This witnesseth, that it is hereby mutually agreed between the Concord Railroad Corporation as the first party, and the Boston & Lowell Corporation as the second party, as follows:

ARTICLE 1. That said first party now being in occupation of and operating the railroad of the Nashua, Acton & Boston Railroad Company, under a lease of the same from said company to it, dated January 10, 1876, is, during the continuance of this agreement as hereinafter mentioned, or for so long a time thereof as it may under the lease aforesaid, or otherwise, have the control of said railroad, to allow the said second party, in the place of said first party, to have the occupation and the operation of the railroad aforesaid, or other property in connection therewith, of said Nashua, Acton & Boston Railroad Company included in the aforesaid lease of the same, as fully as said first party may be entitled thereto under said lease.

ART. 2. Said second party, while it may have the occupation and operation of said railroad as contemplated in this agreement, is to assume, observe, and perform all the duties, agreements, and obligations of said first party mentioned and provided in the lease hereinbefore referred to, as fully in all respects as said first party is by said lease bound to do, not however including the payment of the annual rent mentioned in said lease. And at any termination of this agreement, said second party is to quit and deliver up said railroad and other property in as good order and condition as the same now are.

ART. 3. And said first party is, during the continuance of this agreement, also to allow the said second party to have the occupation and operation for its own use and benefit of the Manchester & Keene Railroad, now belonging to the parties hereto, so far as said first party may be interested in any way therein.

ART. 4. Said second party, while it may have the occupation and operation of said railroad as contemplated in this agreement, is at its own charge and expense to discharge and perform all the duties incumbent by law, relative to the maintenance and operation of said railroad, for the accommodation of the public, pay all taxes legally assessed on the same, and assume all the liabilities and risks in the operation of said railroad and doing business on it, and on any termination of this agreement, is to leave said railroad in as good order and condition as the same now is or may be put into.

ART. 5. It is understood between the parties that said first party is to pay its proper share, not however exceeding in all the sum of sixty-two thousand five hundred dollars (\$62,500), of the expenses of the improvements and repairs on said Manchester & Keene Railroad which have heretofore been agreed to by it, but it is not to be liable for any other improvements or repairs which may, during the continuance of this agreement, be necessary or made.

ART. 6. Said second party is to pay the first party a compensation for the rights and privileges allowed to it by said first party, as hereinbefore provided, at the rate of fifteen hundred dollars per month during the continuance of this agreement, payment to be made at the expiration of every three months in said time.

ART. 7. This agreement shall continue and be in force between the parties

hereto for the term of five years from the date hereof; *provided, however, that either party shall have the right to terminate the same at any previous time it may desire, by giving to the other party notice in writing to that effect at least three months previously thereto.*

June 30, 1884.

[Signed]

CONCORD RAILROAD CORPORATION,

By J. MINOT,

B. A. KIMBALL,

Committee.

LEASE

OF PETERBOROUGH RAILROAD TO THE NASHUA & LOWELL RAILROAD.

This indenture, made the sixth day of May, in the year eighteen hundred and seventy-two, between the Peterborough Railroad, a corporation duly established by the laws of the State of New Hampshire, of the first part, and the Nashua & Lowell Railroad Corporation, established by the laws of the States of New Hampshire and Massachusetts, of the second part,

Witnesseth, that whereas, by an act passed by the Legislature of New Hampshire, approved July 9, 1869, authority is given to the first party to lease its road, or any part thereof, to any other railroad corporation, on such terms and for such time as said railroad companies may agree; and may make and execute such lease to such other corporation as well before as after its construction; and, whereas, it is desirable to first construct and put in operation that portion of said Peterborough Railroad extending from the Wilton Railroad at East Wilton to or near the village of Greenfield, a distance of about ten miles; and, whereas, subscriptions to the stock of said railroad are now being taken, conditioned upon a contract being executed for the operation of said road, and the guaranty of a certain income, by the second party hereto;

Now, therefore, the said Peterborough Railroad, party of the first part, in consideration of the covenants herein contained on the part of the Nashua & Lowell Railroad Corporation to be kept and performed, doth hereby agree to build and complete, on or before the first day of April, 1873, that part of its said railroad from Wilton to Greenfield aforesaid, at its sole and separate cost and expense, in the manner hereinafter specified, and to deliver up the same, with all its appurtenances, to the said Nashua & Lowell Railroad Corporation, party of the second part, its successors and assigns, to be used, run, operated, managed, and controlled by said second party for the full period of twenty years from the first day, inclusive, of April, eighteen hundred and seventy-three. And said party of the first part delegates to said second party for said term all its powers to regulate and manage the said road, and to collect tolls and income therefrom, for the sole benefit of said second party.

The said first party also agrees on its part to warrant and defend the said second party in quiet possession of the said road and appurtenances, during the term aforesaid, against the claims and demands of all persons or parties other than claims growing out of the operation of said road under this contract; also at its own separate cost to keep up its corporate organization during the continuance of this agreement, and to pass and perform all such official acts as may from time to time become necessary for the legal and proper management of the road and property.

And the first party agrees to construct said road as herein conditioned, viz.:

First. To commence the same as soon as it can be definitely located and put under contract, and to complete the road ready for running on or before the first day of April, 1873.

Second. To build its road in every respect equal to the Wilton Railroad, with similar width of cuts and banks, and the like quality of masonry, bridging, and fencing, with good quality of iron rails of not less than 56 pounds' weight per yard, having either iron or wood slices at the joints, and with ties similar to those used on the Wilton road.

Third. To secure all lands requisite for the road-bed, turnouts, gravel banks, and station grounds, and to construct such depots in wood, and such side-tracks, as the anticipated business would seem to require.

Fourth. It is understood that no grade in the road shall exceed eighty feet to the mile, and no curve in the main track shall be sharper than nine hundred feet radius.

Fifth. The road shall be located and constructed under the direction and control and to the satisfaction of the manager of the second party.

Sixth. The rolling stock is to be furnished by the second party, and is to remain their sole property.

And the said Nashua & Lowell Railroad Corporation, party of the second part, in consideration of the premises, hereby agree, for and during the term of twenty years, as aforesaid, to manage said property in accordance with the provisions of the charter of the Peterborough Railroad and the laws of the State, to do and perform all the transportation of persons and freight upon and over the said road, and to collect the tolls and income thereof, as full satisfaction for the managing, operating, and running the same, and that they will, at their own cost and expense, maintain the said section of the Peterborough Railroad, its road-bed, bridges, tracks, fences, and buildings, and all the property entrusted to them by said first party, and will deliver up the same at the expiration of this agreement in good order and repair.

And in further consideration of the income aforesaid to be derived from said railroad, the Nashua & Lowell Railroad Corporation, party of the second part, agree to pay to the Peterborough Railroad, party of the first part, from the time said road is completed and put in their possession until the expiration of the lease, as aforesaid, semi-annually, at the office of the Nashua & Lowell Railroad in Nashua, a rental of three per cent upon the nominal cost of said section of the Peterborough Railroad as hereinafter defined; that is to say, the nominal cost of the road on which rental is to be paid shall be rated at forty thousand dollars less than the actual amount which may be expended upon its construction under the sanction of the manager of the second party;

It being understood that gratuities to the amount of forty thousand dollars are to be contributed from towns and individuals, and the party of the first part hereby assumes the collection of said gratuities to be expended in the construction, as aforesaid, and guarantees that the same shall be so raised and expended, and be exempt from income.

And the second party further agrees to assume and pay all taxes that may become due or be legally assessed on said section of road from the time the same comes into its possession, and during the continuance of this indenture, and also all government taxes upon the rental or dividends as aforesaid;

Also to allow and pay to the first party, for expenses of organization, the sum of one hundred and fifty dollars annually, and to allow to the corporate officers of said Peterborough Railroad Company, not exceeding seven in number, free passage at their own risk upon and in the passenger trains run over said road, and over the Nashua & Lowell road, and over the Wilton road, while operated by the second party.

And said party of the second part also agrees to save blameless the said party of the first part from all suits, processes, costs, expenses, and damages incident thereto, arising from any accident which may happen on said Peterborough Railroad while in the hands of the second party, or by reason of the running of the same by them, or for any act, or neglect, or doing of the said party of the second part, and further to annually make such returns and specifications to the first party as may be required by them for their report to the Legislature or railroad commissioners.

In case the treasurer of the Nashua & Lowell Railroad is elected or appointed treasurer of the Peterborough Railroad, and shall accept said election or appointment, he shall perform all the duties appertaining thereto at the office of the Nashua & Lowell Railroad Company, and without charge to the said Peterborough Railroad for such services or office rent; *provided, however,* that he shall give to said Peterborough Railroad Company a separate and distinct bond for the faithful performance of said duties, and the Nashua & Lowell Railroad Company are in no way to be accountable for his acts in such capacity.

And in case such treasurer of the Nashua & Lowell Railroad is offered such appointment to the office of treasurer of the Peterborough Railroad, and declines to accept the same, it shall be the duty of said party of the second part to pay such other person as may be appointed by the Peterborough Railroad to the said office of treasurer a fair compensation for services in said office, not exceeding one hundred dollars per annum; said sum to be paid by the second party, in addition to the sum heretofore named to be paid to the first party for expenses of organization.

It is understood and agreed that interest at the rate of six per cent per annum may be allowed on assessments paid in upon the stock of said Peterborough Railroad during the building of the road, and that so much of said interest as is not secured by temporary loans may be charged to the cost of construction; also, that the construction account shall be charged with all taxes accruing before April 1, 1873.

This contract shall take effect upon the completion of the said road, and its delivery to and acceptance by the second party; and the first payment of rent under it shall be made on the first day of April, or of October, next succeeding such delivery and acceptance, and shall be proportionately at the rate of six per cent per annum for the time between such acceptance and such first day of April or October. And thereafter the said semi-annual payments shall be made on the first days of April and October in each year during the continuance of this agreement.

In witness whereof, the parties have hereunto subscribed, by their committees duly authorized thereto, and caused their corporate seals to be affixed, the day and year first above written.

PETERBOROUGH RAILROAD,

By SOLOMON SPALDING,

GRANVILLE P. FELT,

Committee duly Authorized.

[Seal.]

In presence of

MYRON TAYLOR.

THE NASHUA & LOWELL RAILROAD CORPORATION,

By F. B. CROWNINSHIELD,

EDWARD SPALDING,

GEO. STARK,

Committee duly Authorized.

[Seal.]

In presence of

L. R. KIDDER.

I hereby certify that by vote of the directors of the Peterborough Railroad, at a meeting held on the sixth day of May, 1872, a committee consisting of Solomon Spalding and Granville P. Felt was authorized to execute on behalf of the Peterborough Railroad the within lease of the said Peterborough Railroad.

ALBERT SMITH,

Clerk of the Directors of the Peterborough Railroad.

I hereby certify that by a vote of the directors of the Nashua & Lowell Railroad Corporation, at a meeting holden on the twenty-sixth day of April, 1872, a committee consisting of Francis B. Crowninshield, Edward Spalding, and George Stark was authorized to execute on behalf of the Nashua & Lowell Railroad Corporation the within lease of the Peterborough Railroad.

GEORGE STARK,

Clerk of the Directors of the Nashua & Lowell Railroad Co.

CONTRACT

WITH THE WILTON RAILROAD.

This indenture, made the sixth day of May, A. D. 1872, between the Wilton Railroad Company, established by the laws of the State of New Hampshire, of the first part, and the Nashua & Lowell Railroad Corporation, established by the laws of the State of New Hampshire and by the laws of the Commonwealth of Massachusetts, of the second part,

Witnesseth, that whereas, on the second day of May, A. D. 1860, the respective parties hereto entered into a contract whereby the Wilton Railroad was leased to the Nashua & Lowell Railroad Company for a term of eighteen years from the first day of April, A. D. 1860, which lease has been approved by the Governor and Council and railroad commissioners, and sanctioned for its full time by a special act of the Legislature; and, whereas, it is proposed to extend the said railroad line by the construction of the Peterborough Railroad to or beyond Greenfield, and to lease the same for a period of twenty years to the Nashua & Lowell Railroad Company, and it is essential to the success of the enterprise that the Wilton Railroad should be leased for a corresponding length of time;

Now, therefore, for the considerations herein named, the said party of the first part hereby agrees that the said Wilton Railroad shall remain in the possession of and be operated by the party of the second part for the term of twenty years from and after April 1, 1873, upon the same terms, conditions, and stipulations set forth in the lease of May 2, 1860, above referred to, except as the said terms, conditions, and stipulations are hereinafter specifically modified, viz.:

It is hereby further agreed, that from and after April 1, 1873, the semi-annual rent, to be paid in currency of the United States, by the second party to the first party, for the use of the Wilton Railroad and property leased under said original contract, shall be three and one half per cent upon the capital stock of said Wilton Railroad, now issued, or which may hereafter be issued in conformity with the terms of this agreement; *provided*, that the rent to be paid by the Nashua & Lowell Railroad Company, under this contract, shall in no event amount to a greater per cent upon the capital stock of the Wilton Railroad in any one year than is earned during the same year by

the Nashua & Lowell Railroad upon its own capital stock over and above all payments and expenses. It being understood and agreed that the capital stock is now fixed and issued to the amount of two hundred and fifteen thousand dollars, and that it shall only be increased upon request of the second party given in writing. And when, at any time, the second party shall make such written request or requests to the first party for an increase of their capital, the first party will issue and sell their stock at not less than par to the amount or amounts called for, and expend the proceeds thereof in improvements or enlargements of their tracks, lands, buildings, or other property upon or adjacent to their railroad, as may be required, under the direction and to the satisfaction of the party of the second part; *provided, however*, that the stock of said Wilton Railroad shall not be increased so as to exceed two hundred and fifty thousand dollars. And there shall also be annually paid by the second party to the first party, as an allowance for expenses of organization, the sum of one hundred and fifty dollars.

And the parties also agree that no claims for betterments or depreciation shall be made by either party at the termination of the existing lease, but that its provisions in this regard shall be continued to the close of this indenture.

And both parties agree to join in all proper efforts requisite for an approval or sanction of this extended agreement by the Legislature or other legal authorities.

And in consideration aforesaid, the said Nashua & Lowell Railroad Company hereby agree to pay said semi-annual rent, and other payment, to said first party, at the times and at the place referred to in the original agreement, and both parties agree to be bound for the time herein named to the stipulations of said original agreement, except in so far as it is changed or modified by this indenture.

In witness whereof the respective parties have hereunto subscribed, by their committees duly authorized, and have caused the seals of the said corporations to be affixed, the day and year first above written.

In presence of

T. H. WOOD, to C. C. B. & W. R. R.

C. C. BOUTWELL,
WM. RAMSDELL,

[L. S.]

Committee of the Wilton Railroad Company.

L. A. KIDDER, to F. B. C., E. S. & G. S.

F. B. CROWNINSHIELD,
E. SPALDING,
GEO. STARK,

[L. S.]

Committee of the Nashua & Lowell Railroad Company.

I hereby certify that by vote of the directors of the Nashua & Lowell Railroad Corporation, at a meeting held on the twenty-sixth day of March, 1872, a committee consisting of Francis B. Crowninshield, Edward Spalding, and George Stark was authorized to execute, on behalf of the Nashua & Lowell Railroad Corporation, the within lease of the Wilton Railroad.

GEORGE STARK,

Clerk of the Directors of the Nashua & Lowell Railroad Company.

I hereby certify that by vote of the directors of the Wilton Railroad, at a meeting held on the 30th day of March, 1872, a committee consisting of C. C. Boutwell and William Ramsdell was authorized to execute the within lease on behalf of the Wilton Railroad Company.

JOHN REED,

Clerk of the Directors of the Wilton Railroad.

LEASE.

WILTON RAILROAD TO THE BOSTON & LOWELL RAILROAD.

This indenture, made this first day of February, A. D. 1884, by and between the Wilton Railroad Company, a corporation established by the laws of the State of New Hampshire, as first party, and the Boston & Lowell Railroad Corporation, a corporation established by the laws of the Commonwealth of Massachusetts, as second party, witnesseth:

That, whereas, said first party is possessed of a railroad extending from the line of the Nashua & Lowell Railroad, in the city of Nashua, Hillsborough county, State of New Hampshire, to the line of the Peterborough Railroad, in the town of Wilton, county and State aforesaid; and, whereas, said first party has agreed to grant, and said second party has agreed to take and accept, a lease of said railroad and other property belonging to said first party, upon the terms and conditions hereinafter set forth;

Now, therefore, said first party, in consideration of the rent, covenants, and agreements hereinafter mentioned, to be paid, kept, and performed by said second party, has granted, leased, and demised, and does hereby grant, lease, and demise unto said second party its railroad extending as aforesaid, together with all the lands, stations, and buildings owned, used, or occupied by said first party, or by others holding under said first party, and all fixtures and appurtenances thereto belonging, and all the right, title, and easement of said first party in and to the lands lying within its location, with full right and authority to said second party to hold and use said rights, easements, and privileges as fully as said first party might or could if these presents had not been executed;

To have and to hold the same to said second party for and during the term of ninety-nine years from and after the first day of October, A. D. 1883, said second party yielding and paying unto said first party the rent hereinafter mentioned, and keeping and performing all the covenants and agreements of said second party hereinafter contained; but nothing herein contained is intended to operate to the prejudice of or to qualify in any way the rights of said first party conferred by its charter, or to curtail any powers or franchises of said first party, or prevent the exercise thereof in such manner as may be necessary for the protection of the interests of its stockholders.

And said second party hereby covenants and agrees with said first party that it will pay to said first party as rent the sum of eight thousand four hundred dollars, semi-annually, upon the first days of April and October in each year during the term of this agreement, the first payment of said rent to be made on the first day of April, A. D. 1884 (or such sum as may on the day on which said payment becomes due be equal to three and one half per cent upon the then existing capital stock of said Wilton Railroad), and it is hereby agreed that the present capital stock of said Wilton Railroad shall, for all purposes of this agreement, be assumed to be two hundred and forty thousand dollars; and said second party hereby covenants and agrees with said first party that it will pay all public taxes, assessments, and charges whatsoever that shall be placed upon said first party on account of its property, franchise, or capital stock.

Said second party further covenants and agrees that it will, during the term of this agreement, operate said railroad of the first party, fulfilling all the duties and liabilities of said first party in relation thereto, in the same manner as if said railroad remained in the possession and control of said first party; that it will protect and save harmless said first party against all claims for injury to persons or property during said term by reason of any

want of repair of said railroad, or appurtenances, or casualties, or want of care and skill in the management of the same, or by reason of negligence or defects therein; that it will comply in all respects with the requirements of law, in the same manner as if said second party was itself the proprietor of said railroad, and will not subject said first party to any penalty or forfeiture for violation of law in any respect, and that at the expiration of said lease, or earlier termination thereof by consent of said first party or otherwise, it will return the railroad and other property of said first party in as good order and condition as the same now is, without diminution or depreciation in any respect.

Said first party covenants and agrees with said second party that it will, during the continuance of this agreement, upon request of said second party, take and execute such contracts of lease or otherwise with connecting railroads as may be agreed upon or desired by said second party, said second party in such case assuming all responsibility for the performance of such new leases or contracts, and indemnifying said first party against all liability on account thereof.

Said first party covenants and agrees that it will keep up and preserve its organization during said term, and will perform all acts necessary or proper to enable said second party to enjoy the full benefit of all the provisions of this agreement, and said second party agrees to pay to said first party, for the purpose of preserving its organization as aforesaid, the sum of seventy-five dollars, semi-annually, on the first days of April and October in each year during the continuance of this agreement, and agrees further to issue from year to year passes to the directors, not exceeding five (5) in number, and to the treasurer and clerk of said first party, good upon the Boston & Lowell Railroad and leased lines.

Said second party shall have the right to make such additions and improvements upon the property of said first party as may seem to said second party necessary, and said additions and improvements shall be paid for by said first party at the full value or cost thereof, at such times as said second party may request in writing, to said second party, in the capital stock of said first party at its par value; said second party to present to said first party a detailed statement of the amount expended by it in such additions or improvements, with the request for payment.

Said second party covenants and agrees that it will not assign or underlet the premises hereby demised, or part with the possession thereof, except with the written consent of said first party, and that it will not suffer said railroad of said first party to get out of repair, or become depreciated or diminished in value, except by the ordinary wear and use thereof.

Said second party further covenants and agrees that, in case of breach of any of its covenants herein contained, or in case that the estate hereby created and invested in said second party shall be taken from it by legal proceedings of any kind, or in case of default of payment of the rent above mentioned, if the same or any part thereof shall remain unpaid for a period of thirty days after becoming due and payable, and after demand in writing made therefor, then said first party may enter upon and take full possession of the premises hereby demised, and remove said lessee and all persons claiming under it from said premises, and thereby determine the estate hereby granted, using whatever force may be necessary for that purpose; and said second party agrees that it will not, in such event, hinder or prevent the entry of said first party to recover the possession of said demised premises as of its former estate.

Said first party covenants and agrees that it will not increase its capital stock, or incur any indebtedness, beyond the sum of two hundred and forty

thousand dollars, specified in this agreement as the total amount of capital outstanding on the date hereof, without the written consent of said second party.

All matters of disagreement under this contract shall be referred to the arbitration of three persons, one to be chosen by the directors of the Wilton Railroad Company, one by the directors of the Boston & Lowell Railroad Corporation, these two to choose a third, the decision of a majority of whom shall in all cases be final and conclusive.

It is further mutually agreed that, as between the parties hereto, this contract shall be a substitute for the existing lease during the continuance of the same of said Wilton Railroad Company to the Nashua & Lowell Railroad Corporation, dated May 6, 1872, which expires April 1, 1893, and that up to said April 1, 1893, the performance of the conditions of this contract shall operate and be accepted by said Wilton Railroad Company as the full performance of all the conditions and provisions of said existing lease dated May 6, 1872, as aforesaid; but, as between the parties to said last-named lease, the same shall remain in full legal force, neither affected nor controlled by the execution or provisions of this agreement, except so far as said Nashua & Lowell Railroad Corporation and the Boston & Lowell Railroad Corporation, as its lessee, are thereby discharged from all liability to pay the rental to said Wilton Railroad Company provided for in said lease, so long as the stipulations of this contract are performed as herein set forth.

In testimony whereof said Wilton Railroad Company, by its committee thereto duly authorized, and said Boston & Lowell Railroad Corporation, by its president thereto duly authorized, have hereunto affixed their corporate names and seals the day and year first above mentioned.

SOLOMON SPALDING,
WILLIAM RAMSDELL, [Seal.]
JOHN A. SPALDING,

Committee.

Executed by W. R. R. in presence of

G. A. RAMSDELL,
HARRY A. WHITING.

THE BOSTON & LOWELL CORPORATION,
By J. G. ABBOTT, *President*. [Seal.]

Witness: C. S. MELLEN.

LEASE.

NASHUA & LOWELL RAILROAD TO BOSTON & LOWELL RAILROAD CORPORATION.

This indenture, made the tenth day of November, A. D. 1880, between the Nashua & Lowell Railroad Corporation, a corporation created under and by virtue of the laws of the State of Massachusetts, party of the first part, and the Boston & Lowell Railroad Corporation, a corporation also established by the laws of Massachusetts, party of the second part, witnesseth:

Whereas, said party of the first part is possessed of a railroad extending from the city of Lowell, Massachusetts, to the city of Nashua, New Hampshire, and is also the lessee of certain other railroads, as hereinafter more particularly stated;

And, whereas, said party of the first part has agreed to grant, and said party of the second part has agreed to take and accept, a lease of said railroad and railroad property belonging to said first party, upon the terms and conditions hereinafter set forth;

Now, therefore, the said party of the first part, in consideration of the rent, covenants, and agreements hereinafter mentioned, to be paid, kept, and performed by the party of the second part, has granted, leased, and demised, and does hereby grant, lease, and demise, unto the party of the second part, the railroad of said party of the first part, extending from Main street in the city of Nashua and State of New Hampshire, in a southeasterly direction, as the same is now located and constructed, to and through the city of Lowell, to a point of connection with the railroad of the party of the second part southerly of the platform of the old Middlesex-street station at said Lowell, said railroad being fifteen and one fourth miles in length, more or less, together with all the land, stations, and buildings used or occupied by said first party for railroad purposes upon or along said route, and all fixtures and appurtenances thereto belonging, and all the right, title, and easement of said party of the first part in and to the lands lying within the limits of the location of said railroad, and especially one undivided half of the station at Lowell, known as the Middlesex-street station, and of all land occupied thereby, reserving, however, to the first party the use of so much of the two rooms at the westerly end of the second story of the passenger station at Nashua, and of the fire-proof vault or safe therein, now occupied by its treasurer, as may be needed by its treasurer and clerk at any time, and the right to use the hall of said station for corporate meetings free of charge; also all the cars, locomotives, engines, shops, equipments, and appliances belonging to or connected with said railroad, and the use thereof, with full right and authority to said second party to hold and use said rights, easements, and privileges as fully as said first party might or could if these presents had not been executed;

To have and to hold the same to said party of the second part, for and during the term of ninety-nine years from and after the first day of October, in the year of our Lord one thousand eight hundred and eighty; the said party of the second part yielding and paying unto said party of the first part the rent hereinafter mentioned, and keeping and performing all the covenants and agreements of said party of the second part hereinafter contained; but nothing herein contained is intended to operate to the prejudice of or to qualify in any way the rights of said party of the first part, conferred by its charter, or to curtail any powers or franchises of said party of the first part, or prevent the exercise thereof in such manner as may be necessary for the protection of the interest of its stockholders.

And the said party of the second part hereby covenants and agrees with said party of the first part, that it will pay to said party of the first part, as rent, the sum of thirty thousand dollars semi-annually, to wit, on the first day of April and on the first day of October in each and every year during said term, at the office of the treasurer of said first party, the first payment of said rent to be made on the first day of April, A. D. 1881; and said party of the second part hereby covenants and agrees with said party of the first part, that it will pay all public taxes, assessments, and charges whatsoever that shall be imposed either in Massachusetts or New Hampshire upon said first party, on account of the property, franchise, or capital stock of said party of the first part during said term.

And the said party of the first part, being also in possession as lessee of the Stony Brook Railroad, located in Massachusetts, and of the Wilton Railroad

and the Peterborough Railroad, located respectively in New Hampshire, under certain instruments of lease or contract hereby referred to, does hereby make, constitute, and appoint the party of the second part its agent or attorney, to manage and operate said several leased railroads, under and in pursuance of the terms and provisions of the contracts therefor, or the leases thereof, held by said party of the first part, and to take the earnings thereof to its own use during the remainder or unexpired part of the terms of said respective leases, with all the rights, powers, and privileges of the party of the first part in and concerning the same; upon condition, however, that said party of the second part shall pay all sums becoming due or payable from said party of the first part, from and after October 1, 1880, to the said Stony Brook Railroad, the said Wilton Railroad, and the said Peterborough Railroad, or either of them, under or by virtue of said contracts of lease, or either of them, at any time.

And said party of the second part hereby covenants and agrees that it will assume as its own all the duties and liabilities of said party of the first part under the leases of said Stony Brook, Wilton, and Peterborough railroads, and will operate said leased roads pursuant to law in every respect, and will indemnify and save harmless said party of the first part against all loss, expense, or liability hereafter arising from the operation of said leased railroads under said leases, or the failure and neglect to operate the same safely and conveniently, and without injury to persons or property.

And said party of the first part covenants and agrees with said party of the second part, that it will, during the continuance in force of this agreement, and upon request of the second party, extend or renew the aforesaid existing leases, or either of them, and take and execute such other contracts of lease or otherwise with connecting railroads as may be agreed upon and desired by said second party, the said second party in such case assuming all responsibility for the performance of such new leases or contracts, and indemnifying the first party against all liability on account thereof.

And the said party of the second part further covenants and agrees that, during the term hereby granted, it will, at its own cost and expense, maintain, preserve, and keep the railroad of the first party in as good condition and repair as the same now is, and will also maintain, preserve, and keep the side-tracks, station-houses, appurtenances, turn-tables, fixtures, rolling stock, and equipments pertaining to said railroad in as good order and repair as the same now are, so that there shall be no depreciation in value thereof, or of said railroad or its main track or superstructure, at any time during said term, it being understood and agreed that said railroad and property are now in first-class condition in every respect, all but three of its thirty miles (considered as single track) being laid with steel rails; it is also agreed that the rolling stock or equipment now consists of,—

19 locomotive engines of the value of.....	\$81,000
16 passenger cars of the value of	31,850
7 baggage cars of the value of.....	9,500
4 milk cars of the value of... ..	4,400
38 eight-wheeled box cars of the value of.....	11,225
118 short box cars (four-wheel).....	20,520
71 long platform freight cars of the value of.....	15,800
55 short platform freight cars of the value of.....	5,935
186 coal cars of the value of.....	25,595
2 snow plows.....	900

Derrick and wreck cars.....	600
The value of all such equipment being.....	\$207,825
Also of furniture at stations not including	
Treasurer's office.....	\$2,500.85
Machinery in repair shop	15,489.16
Road tools, etc.....	2,911.05
	<hr/> 20,901.06
In all.....	\$228,226.06

And that said party of the second part is to renew and keep said equipment good, both in quantity and value, at all times during said term.

And said second party further covenants and agrees that as often as once in every five years, at the request of said first party, it will furnish said first party a complete and correct schedule or description of all the equipment or movable property of the first party then in its hands, and exhibit the same to the president of the said first party, or any person or persons designated to examine the same, or to examine the road generally, and that if on such examination said road, its superstructure or equipment, shall be found or pronounced to be depreciated, insufficient, or inferior in quality, condition, or value, to meet all the requirements of this contract, then said second party shall make good such depreciation in value or deficiency, and shall forthwith expend upon said railroad or property the amount necessary to restore the railroad and property of the first party to its former condition, or pay over said amount in money to said party of the first part.

Said party of the second part further covenants and agrees that it will, during the term of this lease, operate said railroad and leased lines, fulfilling all the duties and liabilities of said party of the first part in relation thereto, in the same manner as if said railroads remained in the possession and control of said party of the first part: that it will protect and save harmless said first party, against all actions or claims for injury to persons or property during said term, by reason of any want of repair of said roads, or appurtenances, or casualties, or want of care and skill in the management of the same, or by reason of negligence or defects therein; that it will comply in all respects with the requirements of the law in the same manner as if said second party were itself the proprietor of said railroad and leased lines, and will not subject said first party to any penalty or forfeiture for violation of law in any respect, and at the expiration of said lease, or earlier termination thereof by consent of the first party, or otherwise, it will return said railroad of the first party, with all equipments thereof, in as good order and condition as the same now is, without diminution or depreciation of value in any respect. In case any additions or improvements of said railroad or property of the first party shall have been made by said second party at any time, such additions and improvements shall be paid for by said first party at the full value thereof, at the time when this lease shall expire or be terminated, provided such additions and improvements, when exceeding \$3,000 in any instance, shall have been made with the knowledge and consent of the first party.

Said party of the second part further agrees that it will keep the buildings and bridges of said railroad and its leased lines suitably insured against loss by fire during the term aforesaid. It further agrees to pay to said first party the sum of five hundred dollars semi-annually, on the first days of April and October of each and every year during said term, as and for the expense of preserving its organization. And said second party further covenants and agrees that whenever the gross receipts to the second party, from the roads now owned and operated by the parties hereto, shall be increased in the sum

of at least one hundred thousand dollars in any financial year, commencing October 1, over and above the gross earnings of the last financial year ending October 1, 1880, said gross earnings of the past year being the sum of \$1,810,922.52, then an additional sum of two thousand dollars for every six months of each year of such increased earnings shall be paid to the party of the first part as additional rent of its railroad.

And said party of the first part covenants and agrees that it will keep up and preserve its organization during said term, and will perform all acts necessary or proper to enable the party of the second part to enjoy the full benefit of all the provisions of this indenture.

And said second party covenants and agrees that it will not assign or underlet the premises hereby demised, or part with the possession thereof, except with the written consent of the party of the first part; that it will not suffer said railroad of the first party to get out of repair, or become depreciated or diminished in value, except by the ordinary wear and use thereof, to be made good by renewal as aforesaid.

And it is further covenanted and agreed by said second party, that in case of breach of any of its covenants herein contained, or in case that the estate hereby created and vested in said second party shall be taken from it by legal proceedings of any kind, or in case of default in payment of the rent above mentioned, if the same or any part thereof shall remain unpaid for a period of thirty days after becoming due or payable, and after demand in writing made therefor, then said first party may enter upon and take full possession of the premises hereby demised, and all depots, shops, buildings, tracks, and other permanent property or rolling stock added thereto, and remove said lessee and all persons claiming under it from said premises, and thereby determine the estate hereby granted, using whatever force may be necessary for that purpose; and said second party agrees that it will not, in such event, hinder or prevent the entry of said first party to recover the possession of said demised premises as of its former estate.

And said second party hereby covenants and agrees that the demised premises, and all books and accounts kept by it relating to the operation of the demised premises, and the business and improvements, renewals and repairs thereof, shall, at all reasonable hours and times, be open to inspection and examination of the directors or officers of the first party, or of such person or persons as they may appoint from time to time to examine the same.

In witness whereof, the Nashua & Lowell Railroad Corporation by its president, and the Boston & Lowell Railroad Corporation by its president, each of said presidents being thereto duly authorized by the directors of said corporations respectively, have executed this and another instrument of even tenor and date herewith, by signing the same in the name of said corporations, and affixing thereto the seal of each corporation on the day herein above mentioned.

NASHUA & LOWELL RAILROAD CORPORATION,

[Signed]

By F. A. BROOKS, *President*. [Seal.]

In presence of

[Signed] C. S. MELLEN.

THE BOSTON & LOWELL RAILROAD CORPORATION,

[Signed]

By J. G. ABBOTT, *President*. [Seal.]

In presence of

[Signed] C. S. MELLEN.

RE-EXECUTION OF LEASE.

NASHUA & LOWELL TO BOSTON & LOWELL.

Whereas, question has been raised as to whether, at the time of the signature to the foregoing lease, the same could be legally executed under the laws of the State of New Hampshire as then existing;

And, whereas, said laws have since been changed so as to authorize such execution, the Nashua & Lowell Railroad Corporation, and the Boston & Lowell Railroad Corporation, for the considerations therein stated, hereby re-execute and sanction the said lease, to continue in force for the time therein limited:

In witness whereof, said Nashua & Lowell Railroad Corporation by its president, and the Boston & Lowell Corporation by its president, have hereunto affixed the names and seals of their respective corporations this sixth day of October, A. D. 1883

[Signed] NASHUA & LOWELL RAILROAD CORPORATION,
By its *President*, F. A. BROOKS. [Seal.]

In presence of
C. S. MELLEN.

[Signed] BOSTON & LOWELL RAILROAD CORPORATION,
By its *President*, J. G. ABBOTT. [Seal.]

In presence of
C. E. A. BARTLETT.

LEASE

OF THE BOSTON & LOWELL RAILROAD TO THE BOSTON & MAINE RAILROAD.

This indenture, made in duplicate this —— day of —— A. D. 1887, by and between the Boston & Lowell Railroad Corporation, a corporation existing under and by virtue of the laws of the Commonwealth of Massachusetts, party of the first part, and hereinafter denominated the lessor, and the Boston & Maine Railroad, a corporation existing under and by virtue of the laws of said Commonwealth, and under and by virtue of the laws of the States of Maine and New Hampshire, party of the second part, and hereinafter denominated the lessee,

Witnesseth, that the said parties, each for itself, its successors and assigns, and each in consideration of the grants, covenants, and engagements herein made by the other, have granted, covenanted, and agreed, and do hereby grant, covenant, and agree, each to and with the other, and its successors and assigns, as follows, to wit:

The lessor doth grant, demise, and lease unto the lessee, its successors and assigns, its railroad and railroad property of every description, including therein its railroad, lands, docks, and wharves within or without said commonwealth, branches, tracks, side-tracks, road-beds, superstructure, station houses, depot grounds, depots, viaducts, bridges, piles, shops, buildings, fixtures, engines, cars, rolling stock, machinery, tools, furniture, telegraph apparatus, equipment, material, and supplies, and all rights, franchises, easements, privileges, and appurtenances thereto belonging, together with the right to demand and receive all tolls, rent, revenue, income, and profits of

the demised premises, including also therein all the right, title, and interest of the lessor in and to any and all railroads operated by it under lease or otherwise, so far as the same are assignable or transferable by the lessor, without violation of law or of agreement, but not otherwise; and in and to any stock of other railroads owned by it, all dividends thereon, and its right of voting on the same, and in and to any bonds, obligations, and contracts of or with other railroads, corporations, or individuals, and all income, or other advantages and benefits to be derived therefrom, a schedule of which stock and bonds is hereunto annexed, hereby assigning and transferring unto the lessee, subject to all legal obligations and incumbrances thereon, all its railroads, railroad property, franchises, and assets of every description, except as above stated;

To have and to hold all and singular the demised premises to the lessee, its successors and assigns, for and during the term of ninety-nine years from and after the first day of April, A. D. 1887, the said lessee keeping and performing the covenants herein contained, on its part to be kept and performed, and yielding and paying rent for the said premises, to the amount and in the manner following, to wit:

1. The lessee shall pay all operating expenses of the lessor, and of all railroads of which it shall come into possession, or which it shall operate under and by virtue of this instrument, there being included therein, as a part thereof, all repairs and renewals, all expenditures arising out of any contract obligation, business negligence or misfeasance, or however otherwise arising, and whether the liability for the same now exists or be hereafter created, in any way connected with the use and operation of the demised premises, or of railroads operated by the lessee or the lessor, as herein provided, and including damages to persons or property, insurance, all taxes of every description, federal, state, and municipal, upon property, business franchises, or capital stock, all expenses consequent upon or incidental to the renewal or refunding of the lessor's indebtedness, or that of any road owned, leased, or operated by it, any expenditures hereinafter to be declared to be operating expenses, and the organization expenses of the lessor, for which in addition to sufficient office accommodations to be furnished by the lessee at the present station of the lessor, in Boston, or at such station as shall be erected in its place,

There shall be paid to the lessor at the end of each successive three months during the term of this lease the sum of seventeen hundred and fifty dollars (\$1,750).

2. The lessee shall pay as the same becomes due the rentals of all railroads of which it shall come into possession, or which it shall operate under and by virtue of this instrument, during the continuance of this lease, and of all roads leased to this lessor according to the terms of the several leases, and the interest on the indebtedness of the lessor and on the indebtedness of all roads leased or operated by the lessor which this lessor is under obligation to pay, a schedule whereof is hereto annexed, and upon such future indebtedness as shall be created for the purposes herein provided, and to that end shall pay to the lessor such sums of money at such times as shall enable it to punctually meet the interest on such indebtedness as the same matures.

The lessee shall assume and pay the current expenses and indebtedness upon open account of the lessor outstanding at the date of this lease, and the same shall be accounted for, and be re-imbursed to the lessee at the termination of this lease.

The lessor shall turn over to the lessee all cash on hand, outstanding bills, notes and accounts receivable, and all sums received thereon, and all such

cash on hand shall be accounted for and paid over to the lessor without interest at the termination of this lease.

3. The lessee shall pay to the lessor on the first day of July, 1887, A. D., the sum of one hundred and ninety-three thousand five hundred and twenty-nine dollars (\$193,529), being three and one half per cent (3 1-2 per cent) upon its now existing capital stock; shall pay to the lessor the same sum on the first days of every succeeding January and July until and including the first day of January, A. D. 1897; shall thereafter on the first days of every succeeding July and January, during the term of this lease, pay to the lessor the sum of two hundred and twenty-one thousand one hundred and seventy six dollars (\$221,176), being four per cent (4 per cent) on its now existing capital stock, and for any portion of any half year, the rent for which remains unpaid at the expiration or earlier termination of this lease, shall pay the lessor rent *pro rata* at the rate in force at the time of such termination, provided also that from and after any increase of the lessor's capital stock as herein provided, the semi-annual payments, to be made as above, shall be increased so that each payment shall be of an amount equal to three and one half per cent (3 1-2 per cent), if before July 1, A. D. 1897, and to four per cent (4 per cent) on and after July 1, 1897, A. D., upon all the lessor's capital stock issued and outstanding at the time of such payment.

II.

The lessor covenants that if it be found impracticable to at once deliver immediate possession of any railroad leased or operated by it at the inception of this lease, by reason of any agreement to the contrary, or other reason, it will use all reasonable efforts to deliver and will deliver possession thereof as soon as practicable.

The lessor shall, meanwhile, continue in the possession of such railroad, and under the direction of the lessee, in all respects shall continue to use and operate the same under its contract with the company owning the same, and to pay the rental or other consideration agreed to be paid for the use of the same, and to receive the earnings thereof, but shall immediately transfer and pay over all such earnings to the lessee to its own use, which in consideration thereof shall re-imburse the lessor for all expenditures, and indemnify and hold it harmless against all costs, claims, and liabilities arising out of the lessor's possession and operation of said railroad, or under and by virtue of its lease or other contract for operating the same.

III.

The lessee shall assume all traffic balances due from the lessor to other railroads or transportation companies, shall assume all contracts of the lessor for equipments, supplies, and material, and all other contracts and liabilities of the lessor to and with individuals or corporations, expressed or implied (its contracts with the holders of its indebtedness, as scheduled, excepted), and shall assume and defend all suits against the lessor arising out of, or in any way connected with, the past or future use and operation of the demised premises, and road or roads hereafter received or operated by the lessee or the lessor, as herein provided, and pay all judgments obtained thereon.

IV.

The lessee shall pay the interest upon any portion of the indebtedness of the lessor, or of its leased or operated lines, that shall be renewed or extended during the term of this lease, in like manner as upon the same indebtedness before renewal or extension, and in case the lessee shall take

up or purchase, and enforce by foreclosure or otherwise, any indebtedness of any of the said leased or operated lines which shall not be so renewed or extended, the securities so taken up or purchased, and all title, benefit, or advantage of the enforcement thereof, shall inure to the lessor at the termination of this lease, upon its re-imbursing to the lessee all sums paid and expenses incurred in so taking up, purchasing, and enforcing the same.

If the lessor shall be duly authorized to construct, complete, and equip the main line of the Central Massachusetts Railroad Company, and to construct a branch or extension thereof between Palmer and Holyoke, as provided in lease of said Central Massachusetts Railroad Company to the lessor, and to issue its bonds to meet the costs of such completion, equipment, and construction, the lessor shall, under the direction of the lessee, construct, complete, and equip said main line, and construct, complete, and equip said branch, as provided by said lease, and issue its bonds to meet the cost thereof.

Said road and branch, as fast as it is completed and equipped, shall pass to the lessee by this indenture, if the Central Massachusetts Railroad Company shall consent to the assignment of its lease, or in default of such consent, and until the same be given, the same shall be operated by the lessor upon the same terms and conditions, as above provided, in Article II. of this indenture, as to the other railroads whereof the lessor is unable to deliver immediate possession, and the lessee shall be subject to the same duties and liabilities in relation thereto as in relation to other roads leased to the lessor, and shall pay the interest upon said bonds, and perform, or cause to be performed, the agreements contained in said lease to be performed by this lessor.

If the lessor shall be duly authorized to buy the property and franchises of the Mystic River Corporation, the Ocean Terminal Railroad Company, and the Ocean Terminal Railroad Dock and Elevator Company, the lessor shall issue its bonds or stock to an amount sufficient to pay for such properties and franchises, and for such improvements on the real estate of said companies, and the property of the lessor on Mystic river, as the lessee may deem necessary and proper to fit the same for the efficient and convenient transaction of business.

The lessor shall issue its stock or bonds without delay for the funding of its existing floating indebtedness, to wit, all its indebtedness represented by notes payable, including notes given the Nashua & Lowell Railroad Corporation, if the same can be so funded, but not *its* current debts or open accounts.

If, with the assent of the directors of the lessor, or after a decision of the railroad commissioners that the same are necessary and proper, as provided in Article VII. hereof, the lessee shall make permanent additions to or improvements upon the demised premises, the lessor shall also issue stock or bonds to an amount sufficient to meet the cost thereof.

In all the cases herein provided for, in which stock or bonds is or are to be issued by the lessor, the lessor shall issue both or either class of securities as the lessee may request, but in each case only so far as it may legally do so; *provided, however*, that if the lessor shall require additional legislative authority to enable it to issue either class of securities as desired by the lessee, the lessor shall at the request and expense of the lessee do all acts and things necessary to procure such authority.

Stock so issued as herein provided after the inception of this lease shall from the time of such issue be deemed part of the lessor's capital stock within the provisions of clause 3 of Article I. of this lease.

Bonds so issued as herein provided after the inception of this lease shall

be scheduled and the interest thereon paid as part of the lessor's indebtedness under and pursuant to clause 2 of Article I. hereof.

The indebtedness of said lessor as scheduled shall be renewed by the lessor with the aid of the lessee as the same matures, and the whole or any portion thereof shall, at the request and under the directions of the lessee, be refunded at such time or times as may be practicable, at the lowest rate of interest practicable—any benefits from reduced rates of interest consequent upon such renewal or refunding of the indebtedness of the lessor or of any of its leased or operated lines to inure to the lessee.

The term of such renewal shall not extend beyond the term of this lease without the consent of the lessor.

V.

Leases and contracts of the lessor for the operation of other railroads terminating during the term of this lease shall be renewed by the lessor under the direction and with the assent of the lessee upon the most favorable terms practicable.

But the said lessee shall not be bound to assent to the renewal of such lease or contract at a rental exceeding the rental payable at the inception of this lease, unless upon application of the lessor to the board of railroad commissioners said renewal shall be decided to be necessary to the reasonable protection of the interests of the lessor.

Leases and contracts so renewed shall be subject to all the provisions of this lease as effectually as if now existing and herein included, and upon the expiration or earlier termination of this lease, shall be reassigned to and inure to the benefit of the lessor.

The lessor shall also make and execute such other leases or operating contracts with other railroad companies as the lessee may request, every such lease or contract, however, if the lessor shall so elect by its terms, to expire at or before the expiration of the term of the lease created by these presents, and all obligations and liabilities arising therefrom to be assumed and sustained exclusively by the lessee, and the lessor shall be held harmless from any loss arising therefrom.

The lessee agrees that any lease or operating contract hereafter made with any railroad or railroad company or corporation mentioned in chapter 459 of the Acts of the Commonwealth of Massachusetts, for the year 1869, with the exception of the Manchester & Lawrence, or with the Addison, Burlington & Lamoille, Consolidated Vermont, Central Vermont, St. Johnsbury & Lake Champlain, Lamoille Valley Extension, Manchester & Keene, Missisquoi, Nashua, Acton & Boston, Cheshire, Montpelier & Wells River, Montpelier & White River, Southeastern, Mt. Washington, New London Northern, Newport & Richford, Peterboro' & Hillsboro', Peterboro', Profile & Franconia Notch, Brattleboro' & Whitehall, Southern Vermont, Vermont Valley, Whitefield & Jefferson, Massawippi Valley, Woodstock, or Central Massachusetts Railroad, or any of them, or with any branch or extension of any, of any such railroads, shall be made or executed with the lessor, and not with the lessee or any person or corporation acting in its behalf, such lease or contract, at the expiration or earlier termination of this lease, to inure to the benefit of the lessor.

VI.

The lessee shall have the right of voting on all stock owned by the lessor in other railroads or corporations, except as hereinafter provided, and said stock shall not be sold or otherwise disposed of by the lessee, nor by the lessor, except with the assent of the lessee.

The shares of the stock of the lessor in the St. Johnsbury & Lake Champlain Railroad Company shall be voted by the lessee, so as to promote the interest of that corporation and of the lessor's system of roads, and so as to keep the road of that company in as good condition and repair as the same are now in, and on all questions of the increase of capital, of transferring the possession or operation of its road by lease or operating contract, or of the sale of its road to any other company, or of consolidation with any other company, shall be voted by the lessee only with the assent of the lessor, manifested by vote of its directors.

That the interest charges of the St. Johnsbury & Lake Champlain Railroad Company may be reduced to the lowest practicable point, the lessee's voting power may be used at its discretion to extend, renew, or refund said indebtedness, or any part thereof, to foreclose any existing mortgage of the company's property, to make any new mortgage thereof, to reorganize said company, and to do all other acts and things necessary and proper for the reduction of its fixed charges, and consistent with the preservation unimpaired of the lessor's interest in said company as herein demised.

Provided, however, that the lessee hereby guarantees to the lessor the preservation unimpaired of its interest in and control of said St. Johnsbury & Lake Champlain Railroad Company, as herein demised, and at the expiration or earlier termination of this lease, will return to the lessor either the stock, debt, and bonds hereby demised, or other stock, debt, and bonds giving the same interest in and conferring the same control of the St. Johnsbury & Lake Champlain Railroad Company as the securities herein demised.

VII.

The lessee shall have the right to make such changes in passenger stations, tracks, and terminal grounds in Boston and elsewhere, and to establish such union stations, and to make such separations of railroad grade crossings, as the safety and accommodation of the public and the convenient and economical transaction of business may, in its judgment, require; *provided, however,* that at the expiration or earlier termination of this lease, the lessor's stations, tracks, and terminal grounds shall be returned to it in as good order and repair as the same are now in, and so that the same shall be equally well fitted for the independent use and operation of its own road, or its leased roads, by the lessor.

The lessee shall have the right to make permanent additions to and improvements upon the demised premises, which shall include any increase in track, mileage, buildings, structures, and bridges additional to those existing at the inception of this lease, and buildings, structures, and bridges replacing those existing at the inception of this lease, so far as the cost of such new buildings, structures, and bridges exceeds the cost of restoring such old buildings, structures, and bridges to as good a condition as when new.

Such permanent additions and improvements shall, if assented to by the lessor, or decided by the railroad commissioners to be necessary and proper, be paid for by the lessor, so far as it has or can procure the power to do so, in the manner provided in Article IV. of this lease, otherwise shall be paid for by the lessor at the expiration or earlier termination of this lease in the manner hereinafter provided.

VIII.

The said lessee shall, at its own expense, maintain and keep the demised premises, and all the property and fixtures of every description which it

shall receive or operate under this lease, in as good order and condition as the same now are or shall be when received by the lessee, so that there shall be no depreciation in the same, or any part thereof; and at the expiration or earlier termination of this lease shall return the same to the lessor in the same good order and condition, and shall put the lessor in possession of all its leased roads and property at said time operated by said lessee, or said lessor, under this indenture.

The lessee shall use and operate the railroads and properties herein demised in accordance with the charter of the lessor and of the several corporations whose roads are so operated, and the laws of the Commonwealth of Massachusetts, and of the States of New Hampshire and Vermont, and of the United States, so far as the same are respectively applicable; shall furnish all cars, engines, rolling stock, and equipment of every description required, in addition to the like property hereby demised, for the due operation of the railroads operated under and by virtue of this lease, shall observe and perform all the provisions of contracts of the lessor with the railroads now leased or operated by it, or which may be leased or operated by it, under the provisions of this indenture; shall keep the demised premises reasonably insured, and shall apply the proceeds of any insurance to restoring and replacing the property destroyed, or to making permanent improvements not in the nature of ordinary repairs upon the demised premises; shall apply the proceeds of rolling stock, equipment, and other personal property herein demised which it may deem advisable to sell, and which it is hereby authorized to sell at its discretion, so as to substitute therefor like property of equal value; shall replace buildings or structures on the demised premises, taken down or removed, and which the lessee is hereby authorized to take down or remove at its discretion, with other building, structures, or permanent improvements, upon the demised premises, of equal value and equally convenient for the use of the lessor should this lease be terminated; shall furnish the directors and treasurer of the lessor with free annual passes over all the railroads operated by or for the lessee; shall permit the demised premises to be inspected annually by the lessor's directors, and by some competent person appointed by the lessor, who shall report to the lessor the condition of said premises, and shall for the purpose of such inspection be furnished with free transportation over the railroads operated by the lessee under this lease, and shall receive a reasonable compensation for his services, to be paid as a part of the lessor's operating expenses; shall make all returns required by law, and shall furnish the lessor with such abstracts of accounts as shall enable it to make all returns required of the lessor; shall not assign this lease nor underlet the premises, or any part thereof, except such portions thereof in the judgment of the lessee may not be required for railroad uses, without the written assent of the lessor first had and obtained; and shall cause all rolling stock hereby demised, all rolling stock substituted for that herein demised, and added thereto, to be distinguished by appropriate names, numbers, or letters, and at the end of the term of this lease, or at any earlier termination thereof from any cause whatever, shall surrender the real and personal estate now or hereafter demised as aforesaid, to be ascertained and determined according to the inventory hereinafter provided for, in the like good order and condition in which they are at the inception of this lease, or when received by the lessee, or may be put during the term, with all improvements thereon or additions thereto, the amount of money, materials, and supplies to be surrendered or accounted for to the lessor to be equivalent in value to the amount on hand at the inception of this lease, as shown by said inventory, and all stock, bonds, or securities, or any bonds or securities substituted therefor, under the pro-

visions of this indenture, to be returned at the expiration or other earlier termination of this lease; *provided*, that at the expiration or earlier termination of this lease, the lessor shall pay to the lessee the value of any permanent improvements and additions not already paid for by the lessor, the said value to be determined, unless agreed upon by the parties, by the board of arbitrators provided for in the twelfth article of this lease.

IX.

That the property herein demised and to be accounted for at the expiration or earlier termination of this lease may be accurately determined, there shall be made, as of the day when this lease takes effect, a full, complete, and particular inventory, description, and appraisal of all estate and property, real and personal, belonging to the lessor and coming into the possession of the lessee by virtue of this lease, and to this, from time to time, shall be added such other estate and property as shall come into the possession of the lessee under the terms of this lease.

Such inventory, description, and appraisal, and the additions thereto, from time to time, shall be made by two competent persons, one selected by each party; in case of their disagreement, they shall refer the matter in difference to some third party, whose decision shall be final.

Such inventory, description, and appraisal shall be made in duplicate, and an original furnished to each party, and shall be evidence of the nature, value, and condition of the property demised at the inception of this lease, or at the time of the additions thereto, in all cases in which any question of such nature, condition, or value may arise.

X.

The lessor shall maintain its existence and organization as a corporation, and to that end shall comply with all the requisites and forms of law, shall do all acts and things, and execute all legal instruments necessary and proper to put and secure the lessee in the full enjoyment of all the property, rights, franchises, and interests herein demised, and to carry into effect the true intent and meaning of this lease, and shall not increase its capital stock as now existing and issued without the assent of the lessee, except as provided in this lease.

To further secure the lessee in the beneficial enjoyment of the property, franchise, rights, and privileges herein demised and specified, the lessor constitutes the lessee its attorney irrevocable, with full right and power at the lessee's expense to use the name of the lessor in all legal proceedings, and in all cases needful for obtaining, holding, and enjoying the premises herein demised and specified, and for all purposes consistent with the true scope and intent of this instrument.

XI.

This lease is upon the condition that if the lessee shall at any time fail to make to the lessor, as part of the rent herein reserved, the payments herein stipulated to be made to it, to enable it to pay the interest on its indebtedness, or shall fail for thirty days to make any semi-annual payment as stipulated for in clause 3 of Article I. hereof, then in such case the lessor may at once enter upon the demised premises, and upon any part thereof as for the whole, and expel the lessee, and determine the estate hereby granted, and shall thereupon become seized and possessed of the demised premises, and of all premises then in possession of the lessee or the lessor under this indenture, and of every part thereof, in its original right, and as if this lease

had never been made; and upon the further condition that, if the lessee shall fail to perform any other of the covenants and agreements in this lease contained, and such failure shall continue for six months after written notice of such failure from the directors of the lessor, the lessor shall have the like right to enter and expel the lessee, and revert in itself its former estate in the demised premises, and all premises then in possession of the lessee or the lessor under this indenture, and every part thereof; *provided, however*, that such entry by the lessor for breach of condition shall in no wise prejudice or impair any remedies to which it might otherwise be entitled for arrears of rent, or preceding breach of covenants, or any rights secured by this lease in case of its termination before the termination of the time thereof.

XII.

In case of any disagreement between the parties hereto, as to the true intent and meaning of this lease, or any part thereof, or as to anything done under and by virtue of it, or growing out of it, the matter in controversy shall be referred by written submission to the arbitration of referees to be chosen in the manner following: one shall be chosen by each of the parties hereto, or if either shall unreasonably neglect or fail to appoint a referee when requested by the other, the board of railroad commissioners may, after due notice to the party so failing or neglecting, appoint a referee.

The third shall be selected by the two so chosen.

The arbitrators shall hear the parties, after due notice to each of them, and if either party fail to attend after such notice may proceed *ex parte*.

The award in writing of said arbitrators, or a majority of them, being duly notified to the parties, shall be final and conclusive upon them.

In testimony whereof, the said parties by their respective presidents and treasurers thereunto duly authorized, have caused their corporate seals to be hereto affixed, and these presents to be executed the day and year first above written.

STATE OF NEW HAMPSHIRE.

SECRETARY'S OFFICE,

CONCORD, June 24, 1887.

I hereby certify that the foregoing is a true copy of the proposed lease of the Boston & Lowell Railroad to the Boston & Maine Railroad, transmitted to this office on the eighteenth day of June, instant, by C. S. Mellen, Esq., general superintendent of the Boston & Lowell Railroad, and now on file in this office.

In witness whereof, I hereunto subscribe my official signature, and affix the seal of the State.

[Seal.]

A. B. THOMPSON, *Secretary of State*.

A MORTGAGE DEED

OF THE CONCORD & CLAREMONT (N. H.) RAILROAD.

KNOW ALL MEN BY THESE PRESENTS: That whereas the Concord & Claremont (N. H.) Railroad, a corporation duly established in the State of New Hampshire, at a meeting of said corporation duly notified and held for that purpose on the twenty-ninth day of December, 1873, by a unanimous

vote duly voted, "that for the purpose of complying with the terms and conditions of Article III. in the agreement of October 16, 1873. for the union to form this corporation, and for the purpose mentioned in said article, the directors hereby are authorized and directed to make and issue bonds of the corporation to the aggregate amount of five hundred thousand dollars; and for the security of the same to mortgage the roads and other property of the corporation then existing or thereafter acquired, with its corporate rights, franchises, and privileges, to trustees, as provided in section ten of the charter of the Sugar River Railroad, on such terms and conditions as the directors may deem advisable; said bonds to be in such form as the directors may determine, and on the time of payment and with the rate of interest specified in the article above mentioned; and the same to be applied in the discretion of the directors for the purposes mentioned in said article;"

And, whereas, in pursuance of said vote, the directors of said corporation, at a meeting duly held thereafterward on the same twenty-ninth day of December, duly passed the following votes, to wit:

"Voted, that in pursuance of the vote of the corporation relative thereto at its meeting of this day, and for the purposes therein stated, bonds of this corporation be made and issued to the aggregate amount of \$500,000; said bonds to be for the sum of \$500 or \$1,000 each, as the president and treasurer may think expedient, dated January 1, 1874, and payable twenty years from date, with interest semi-annually at the rate of seven per cent per annum according to the coupon therefor attached.

"Voted, that the president and treasurer hereby are authorized to prepare said bonds in the form now submitted to this board and approved by it; and to duly execute the same for and on behalf of the corporation.

"Voted, that a mortgage of all the railroads and other property of the corporation, now existing or hereafter acquired, with its corporate rights, franchises, and privileges, be made to three trustees as prescribed in section ten of the charter of the Sugar River Railroad for securing the payment of the bonds above mentioned, according to the terms thereof;

"Said mortgage to be in the form now presented to this board and approved by it, and on the terms and conditions mentioned in the same.

"Voted, that George W. Nesmith, of Franklin; Dexter Richards, of Newport; and George E. Todd, of Concord, New Hampshire, be the trustees to take said mortgage;

"And the president and treasurer hereby are authorized and directed, for and on behalf of this corporation, to duly execute and deliver said mortgage to said trustees."

And, whereas, in accordance with said votes, the bonds of said corporation of even date herewith for the sum of \$500 or \$1,000 each, and to the aggregate amount of \$500,000, payable twenty years from date, with interest semi-annually, at the rate of seven per cent per annum, according to the coupons therefor attached to said bonds, and signed by the president and treasurer of said corporation, have been made ready for issue;

Now for the purpose of securing the payment of said bonds according to the tenor thereof, and in consideration of one dollar to it before the delivery hereof paid by the trustees hereinafter mentioned, and of the trusts hereinafter expressed, the said Concord & Claremont (N. H.) Railroad does hereby give, grant, sell, transfer, assign, and convey to the above mentioned George W. Nesmith, Dexter Richards, and George E. Todd, as trustees for the holders of the bonds above mentioned, and to their successors in said trust when appointed as hereinafter provided, forever, all the railroad of said corporation as now or at any time hereafter established and constructed, from its commencement in Concord to its connection with the

Sullivan County Railroad in Claremont, together with the branch railroad extending from said main road in Contoocookville to Hillsborough Bridge, all in the aforesaid State of New Hampshire, and all the other property of said corporation now existing, or at any time hereafter acquired by it, with all its corporate rights, franchises, and privileges;

To have and to hold the same, with all the privileges and appurtenances thereunto belonging, to said trustees and their successors, in trust as aforesaid, forever, in trust for the holders of bonds aforesaid, and on the following terms and conditions, and this conveyance is made on the same, to wit:

First. Said corporation shall not issue or have secured under this mortgage deed a greater sum in bonds as aforesaid than \$500,000. Said bonds shall be signed by the president and treasurer of said corporation, and have the certificate of one of said trustees that the same are secured by this mortgage deed.

Second. Said corporation shall pay the interest and principal of said bonds, as the same respectively shall become due and payable.

And so long as said corporation shall not be in any default in such payments, it may retain the possession of said roads and property for use in the proper business and operation of said roads. And the directors of said corporation shall have the right from time to time to change or renew any personal property hereby mortgaged, as they may deem necessary; and the property received in exchange or renewal shall be held by said trustees under this mortgage the same as if it were originally and specifically included therein.

Third. In case said corporation shall fail to fulfill all or any of the obligations in said bonds, the trustees aforesaid, or their successors, may take possession of all the property aforesaid, and manage the same at their discretion for the purposes of said roads, and apply the net avails thereof to the payment of such of said bonds as may be outstanding against said corporation, or the interest thereon, in full, or in such proportion to all as said avails may enable them to do.

Fourth. And in case said corporation shall fail for six months to pay the interest or principal of said bonds as the same shall become due, it shall be the duty of said trustees and their successors, on the written application of the lawful holders of a majority in amount of said bonds then outstanding, to take actual possession of said property, and make sale of the same by public auction, on giving reasonable notice of such sale in at least one newspaper published in Boston, Mass., and in one published in Concord, N. H., and after deducting of expenses of said sale and of their trust, to pay over the whole or such proportion thereof as may be necessary, *pro rata*, to the holders of said bonds towards payment thereof, and the balance, if any, to said corporation. And said trustees and their successors are hereby fully authorized and empowered, irrevocably, to make such sale, and to make and execute conveyances of all the rights of this corporation in the premises accordingly; and the purchaser shall not be bound to see to the application of the purchase money.

Fifth. In case any vacancies shall happen in the board of trustees from any cause, the remaining members may at any time fill the same by an appointment in writing, to be attached to this mortgage; and the person so appointed and accepting shall have all the power and be subject to all the duties of the original trustees.

Sixth. Said trustees respectively are not to be holden for the acts and defaults of each other, but each only for his own.

Seventh. And on the full performance of all the obligations, conditions, and stipulations in this deed, and in the bonds referred to in the same, by said

corporation to be done and performed, this deed is to become void, and otherwise to remain in full force.

In witness whereof, the said Concord & Claremont (N. H.) Railroad has caused its name and seal to be hereto subscribed and affixed, by its president and treasurer thereto duly authorized, this first day of January, 1874.

THE CONCORD & CLAREMONT (N. H.) RAILROAD.

By ONSLOW STEARNS, *President.* [L. S.]

J. MINOT, *Treasurer.*

Signed, sealed, and delivered in presence of

A. C. LANCASTER [witness].

CHAS. MINOT.

CHAS. S. MELLEEN.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. January 1, 1874. Then personally appearing, the above named Onslow Stearns and Josiah Minot, for and on behalf of the above named Concord & Claremont (N. H.) Railroad, acknowledged the foregoing instrument to be the free act and deed of said corporation.

Before me,

JOHN Y. MUGRIDGE, *Justice of the Peace.*

Received January 29, 1874.

Recorded book 220, page 173.

CONTRACT OF LEASE

BETWEEN THE HILLSBOROUGH & PETERBOROUGH RAILROAD AND THE CONCORD & CLAREMONT (N. H.) RAILROAD, DATED THE THIRTIETH DAY OF JUNE, 1884, WHICH IS AS FOLLOWS:

This indenture, made the thirtieth day of June, A. D. 1884, between the Peterborough & Hillsborough Railroad, a corporation existing under the laws of the State of New Hampshire, party of the first part, and the Concord & Claremont (N. H.) Railroad, a corporation existing under the laws of the State of New Hampshire, party of the second part, witnesseth:

That the party of the first part, in consideration of the rent, covenants, and agreements hereinafter mentioned to be paid, kept, and performed by the party of the second part, doth hereby grant, lease, and demise unto the party of the second part the railroad of the party of the first part, extending from Hillsborough to Peterborough, in the State of New Hampshire, together with the lands on which said railroad is located, or which are connected with or appertain to the uses of the party of the first part, and are its property, and all rights, easements, franchises, and privileges appurtenant thereto, and all the turn-outs, branch tracks, depot grounds, stations, superstructures, and fixtures belonging thereto, or connected or used therewith, and the lands on which the same are now situated, so far as the same are the property of the party of the first part, whether included in its location or not, and generally all and singular the lands, tenements, and franchises of the party of the first part, and the equipment of its said railroad;

To have and to hold the same to the party of the second part, for and during the term of ninety-nine years from and after the thirty-first day of May,

in the year of our Lord one thousand eight hundred and eighty-four; the party of the second part yielding and paying unto the party of the first part the rent hereinafter mentioned, and keeping and performing all the covenants and agreements of the party of the second part hereinafter contained.

And in consideration of the foregoing, the party of the second part hereby covenants and agrees with the party of the first part as follows, viz.:

First. It will pay to the party of the first part as rent, the interest upon the existing first mortgage bonds of the party of the first part as it accrues and is due and payable by the party of the first part, it being understood and agreed that said first mortgage bonds amount to the sum of one hundred thousand dollars, and at the maturity of said bonds, or of any bonds given in exchange for or renewal of them, it will furnish to the party of the first part the money required to pay them upon receiving therefor new bonds to the same amount, issued by the party of the first part, or its successors, and bearing interest at a rate not exceeding that borne by the original bonds, and will also guarantee the interest upon such new bonds.

Second. It will pay all taxes, assessments, and charges whatsoever that may be imposed upon or payable by said party of the first part on account of its property, franchise, capital stock, or otherwise, during said term, and ten twelfths of any taxes, assessments, or charges which may be imposed upon the party of the first part, for year commencing on the first day of April, 1884.

Third. It will keep such accounts of the business of the road of the party of the first part, and will make such reports thereof, as may be required at any time by law to be kept and made, and will, in the name and for the benefit of the party of the first part, do and perform all things which may be required by law to be done and performed by the party of the first part, which hereby constitutes the party of the second part its agent and attorney for that purpose.

Fourth. It will pay to the party of the first part such sum, not to exceed one hundred dollars annually, as may be necessary to meet the expenses of its organization, which organization the party of the first part hereby agrees that it will keep up and preserve during said term.

Fifth. It will indemnify and save the party of the first part harmless against all loss, cost, damage, or liability caused by or arising out of the operation of its road by said party of the second part, or by reason of the neglect of the party of the first part or of the second part to operate said road as required by law.

Sixth. It will, at its own cost and expense, maintain, preserve, and keep the railroad, side tracks, station houses, appurtenances, turn-tables, fixtures, and equipment of the party of the first part in as good order and condition as the same now are, so that there shall be no depreciation in the same, or in said railroad, or its location, superstructure, and permanent way at any time during said term, and will renew and keep said equipment and property good, and in proper amount and condition to properly do the business upon its road, at all times during said term. And if on examination, said road, its superstructure, equipment, or property, shall be found at any time to be depreciated, insufficient, or unfit in quality, condition, or value to meet all requirements of this indenture, said party of the second part shall make good such depreciation, and forthwith expend upon said railroad or property an amount necessary to restore it to its former condition; and if it does not do so, the party of the first part may make such expenditure at the expense of the party of the second part, which hereby agrees to pay the amount thereof on demand.

Seventh. It will, during the term of this lease, operate said demised railroad

according to all requirements of law, fulfilling all the duties and obligations of the party of the first part in relation thereto, in the same manner as if said demised road remained in the possession and control of the party of the first part, and protect and save harmless the party of the first part against all actions or claims for injury to persons or property during said term by reason of any want of repair of said road and property, or appurtenances, or any casualties of any kind, or any want of care and skill in the management of the same, or by reason of any defects therein, and will comply in all respects with the requirements of law in the same manner as if it were the proprietor of said railroad and property, and will not permit the party of the first part to be subjected to any payment, penalty, or forfeiture for violation of law in any respect, and at the expiration or earlier termination of this lease it will return said demised road, with all equipment thereof, to the party of the first part in as good order and condition as the same now is, without diminution or depreciation in any respect.

Provided, however, that in case any additions or improvements to said railroad or property shall have been made by the party of the second part, at that time, with the written consent of the party of the first part, the same shall be paid for by the party of the first part, at the value thereof, at the time this lease shall expire or be terminated.

Eighth. It will keep the bridges, buildings, equipment, and other property of the party of the first part suitably insured against loss by fire at all times during the term of this lease.

Ninth. It will not assign this lease, or underlet, or part with the possession of the premises hereby demised, or any part thereof, except with the written consent of the party of the first part.

Tenth. And the party of the second part also covenants and agrees that in case of the breach of any of its covenants herein contained, or in case the estate hereby created and vested in it shall be taken from it by legal proceedings of any kind, or in case of default in payment herein provided to be made by the party of the second part, or any part thereof, for the period of thirty days after the same are due and payable, then the party of the first part, its successors and assigns, may enter upon and take full possession of the premises hereby demised, and all depots, shops, buildings, tracks, rolling stock, or other property added thereto, and remove said lessee and all persons claiming under it from said premises, and thereby determine the estate hereby granted, using whatever force may be necessary for that purpose; and the party of the second part agrees that it will not in such event hinder, delay, or prevent entry of the party of the first part to recover the possession of said demised premises as of its former estate; and the party of the second part also agrees that the demised premises, and all books and accounts kept by it relating to the operation thereof, and the business, improvements, renewals, and repairs thereof, shall at all reasonable times be open to the inspection and examination of the directors or officers of the party of the first part, or of such person or persons as may be appointed by them from time to time to examine the same.

The party of the second part also agrees that in case it shall fail to do and perform the matters and things herein agreed by it to be done and performed in payment of taxes, keeping accounts, and making reports required by law, keeping insurance, and maintaining and operating and managing the road and property hereby demised, the party of the first part may do and perform the same at the expense of the party of the second part without prejudice to any remedies the party of the first part may have to enforce the covenants and agreements of the party of the second part herein contained.

The parties hereto also agree that the road and other property covered by

this lease shall be appraised by James R. Kendrick and John Thompson, of Boston (or two other suitable persons chosen by the parties, if said Kendrick and Thompson decline to serve), who if they cannot agree shall choose an umpire, and a schedule of said appraisal shall be attached to this indenture.

In witness whereof, the Concord & Claremont (N. H.) Railroad by Henry C. Sherburne, one of its directors, and the Peterborough & Hillsborough Railroad, by George E. Todd, one of its directors, each being thereto duly authorized, have to this and one other instrument of even tenor and date herewith set their corporate names and seals the day and year first above written.

PETERBOROUGH & HILLSBOROUGH RAILROAD,

[Seal.]

By GEORGE E. TODD, *Director,*
Committee duly authorized.

CONCORD & CLAREMONT (N. H.) RAILROAD,

[Seal.]

By H. C. SHERBURNE, *President and Director,*
Committee duly authorized.

Signed, sealed, and delivered in presence of us :

CHAS. P. SANBORN.

EDGAR H. WOODMAN.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. Concord, June 30, 1884. Then personally appeared George E. Todd, a director of the Peterborough & Hillsborough Railroad, and as a committee duly authorized thereto, acknowledged the above instrument to be the free act and deed of said corporation.

Before me,

EDGAR H. WOODMAN, *Justice of the Peace.*

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. Concord, June 30, 1884. Then personally appeared Henry C. Sherburne, a director of the Concord & Claremont (N. H.) Railroad, and as a committee duly authorized thereto, acknowledged the above instrument to be the free act and deed of said corporation.

Before me,

EDGAR H. WOODMAN, *Justice of the Peace.*

This memorandum witnesseth, that the terms of the above lease have, before its approval by the stockholders of the corporations therein named, been agreed upon by the directors thereof, acting under votes of their respective boards.

H. C. SHERBURNE,
GEO. E. TODD,
DENTER RICHARDS,
CHARLES O. STEARNS,
CHAS. P. SANBORN,

Directors of the Concord & Claremont (N. H.) Railroad.

H. C. SHERBURNE,
GEO. E. TODD,
A. W. SULLOWAY,
I. C. CAMPBELL,
GEO. W. NESMITH,

Directors of the Peterborough & Hillsborough Railroad.

CONTRACT

BETWEEN BOSTON & MAINE AND NORTHERN RAILROADS.

This contract, made this twelfth day of November, A. D. 1887, by and between the Northern Railroad, party of the first part, and the Boston & Maine Railroad, party of the second part, both parties being railroad corporations existing under the laws of the State of New Hampshire, witnesseth;

The party of the second part shall perform all the transportation of persons and freight upon and over the road of the party of the first part, and roads owned or controlled by it, upon the following terms and conditions:

First. The party of the second part shall employ and pay such servants and agents as may be necessary to properly and efficiently perform all such transportation, with due regard to the interests of the public and of the party of the first part, at its own expense, and shall save the party of the first part harmless from all loss, cost, damage, or expense arising from the acts, omissions, or negligences of such servants and agents.

Second. The party of the second part shall also keep and maintain said railroads, side-tracks, station-houses, and all other buildings, appurtenances fixtures, rolling stock, and equipment in as good order and condition as the same now are, and provide sufficient and proper equipment, rolling stock, signals, fixtures and appliances in addition to those owned by the party of the first part, to at all times properly perform the transportation of persons and property upon said roads.

Third. The party of the second part shall perform the transportation herein provided for according to all requirements of law, and protect and save the party of the first part from all loss, cost, damage, or expense by reason of any want of repair of said railroads and property, or any failure to perform the transportation of persons and property thereon according to law, or which shall arise from any act or thing done or omitted to be done by the owners of said railroads or either party hereto, or their servants or agents, in relation to said railroads and property under the provisions of this contract.

Fourth. The tolls, fares, and freights arising from the transportation performed by the party of the second part under this agreement shall belong to and be collected by the party of the first part, and it shall pay therefrom all taxes, assessments, and charges that may be imposed upon or payable by it, or by the Concord & Claremont (N. H.) Railroad and Peterborough & Hillsborough Railroad, on account of its or their property, franchise, capital stock, or otherwise, suitable insurance upon said railroads and property, and a sufficient spark risk upon property on the line of said roads, and exposed to damage by fire or steam from locomotive engines thereon, and at the expiration of each and every three months from the commencement of this contract shall render an account of such collections and payments to the party of the second part, and pay over to it the surplus of all such collections not thus paid out over and above the sum of forty-nine thousand nine hundred and eighty dollars (\$49,980), in full for the performance of the transportation by the party of the second part herein provided for.

Fifth. The rates for transportation performed by the party of the second part, as herein provided, shall be fixed by it, and if the gross collections from such transportation, after making the payments herein provided for, shall not in any three months be sufficient to leave in the hands of the party of the first part the sum of forty-nine thousand, nine hundred and eighty dollars (\$49,980), any deficiency shall be paid by the party of the second part to the party of the first part at the end of such three months.

Sixth. Said railroads and property shall be and remain in the possession and control of the corporations owning them, as may be required by law, subject only to the right of the party of the second part to enter upon the same for the purpose of performing the transportation herein provided for, and this agreement is intended to be a transportation contract only, and not a lease or transfer of the franchise and property of the party of the first part, or of said corporations, to the party of the second part.

Seventh. This contract shall take effect upon its execution, and continue in force for one year, and thereafter until terminated by either party by thirty days' written notice.

In witness whereof, the parties hereto have set their corporate names by their presidents, thereto duly authorized, and affixed their corporate seals to this and one other instrument of like tenor and effect this twelfth day of November, A. D. 1887.

	[Signed]	NORTHERN RAILROAD,
[Seal.]		By A. W. SULLOWAY, <i>President.</i>
	[Signed]	BOSTON & MAINE RAILROAD,
[Seal.]		By GEORGE C. LORD, <i>President.</i>

LEASE

OF THE PEMIGEWASSET VALLEY RAILROAD TO THE BOSTON, CONCORD & MONTREAL RAILROAD CORPORATION.

This indenture made and concluded this thirty-first day of March, 1883, by and between the Pemigewasset Valley Railroad, as the first party, and the Boston, Concord & Montreal Railroad, its successors and assigns, as the second party, each of said parties being corporations duly organized under the laws of New Hampshire, witnesseth:

That said first party, in consideration of the rents, covenants, and agreements hereinafter mentioned, to be paid and performed by said second party, its successors and assigns, does hereby let, lease, and demise to said second party all the railroad of said first party as heretofore located and laid out under the laws of said State, and now in main part constructed from its commencement in the town of Plymouth, in said State, at the line of the Boston, Concord & Montreal Railroad, as appears by its location filed in the office of the Secretary of State, through the towns of Plymouth, Campton, Thornton, and Woodstock, to its terminus as so located on the northerly side of the East Branch, so called, in said town of Woodstock, together with all the lands, tracks, side-tracks, rights of way, buildings, structures, and fixtures of said railroad, and the engines and cars enumerated in the schedule hereto annexed, and all the rights, franchises, privileges, and appurtenances to said railroad as so located, and its property as above set forth, appertaining and belonging, subject to the conditions and limitations in this lease contained.

To have and to hold the same to said second party, its successors and assigns, for and during the term of one hundred years from the first day of February, 1882.

And said second party does hereby for itself, its successors and assigns, covenant and agree to and with said first party, that from and after the first day of February, 1883, it will pay the sum of thirty thousand dollars yearly,

as the yearly rent of said premises and property, payable in semi-annual installments of fifteen thousand dollars each, at the times and in the manner hereinafter provided, and will in like manner pay any further sum that the parties hereto shall agree to as an additional rent of the same premises and property or any additions thereto, not exceeding six per cent annually on the cost of said premises and property as fixed and agreed on by said parties at any time, and will pay as part of the rent of said railroad and other property the interest on the several assessments made on the stock of the first party from the date of the several payments to the thirty-first day of January, 1883, inclusive.

And in addition to the payment of rent as aforesaid, the second party covenants and agrees to seasonably pay and discharge, as they shall become due from time to time, any and all taxes of every kind duly assessed against said first party, or its stocks, or on account of any of the property aforesaid, or on account of any receipts or income of any kind, including the rent aforesaid, from or on account of said premises or property, during the continuance of this lease.

And that it will at all times during the continuance of this lease, at its own charge and expense, provide and furnish all the means, materials, machinery, and other things required to properly maintain and operate said railroad, and will keep said railroad and property in good repair, and will maintain and operate said railroad in all respects as said first party is or may hereafter be bound by law to do.

And will pay all claims for damages or expenses on account of any default or neglect in the proper construction and fencing of said railroad, and in the proper care, repair, maintenance, and operation of said railroad, during the continuance of this lease, and will indemnify and save harmless said first party and its stockholders, successors, and assigns, from all such claims for damages and expenses.

And at the expiration of this lease or its termination in any mode will peaceably surrender and deliver up to said first party said railroad and property and additions thereto, in as good order and condition as the same were when delivered to said second party, are now, or may at any time hereafter be put into, by said first party or at its expense.

And will account to said first party for the engines, cars, and other things named in said schedule, at the cost thereof, as fixed in said schedule.

The aforesaid semi-annual installments of rent shall be due and payable on the first days of February and August in each year during the continuance of this lease, and shall be paid as follows:

The treasurer of said first party shall, when each respective installment becomes due as aforesaid, furnish to the treasurer of said second party a proper list of the holders of the stock of said first party, and the number of shares held by each, and said second party shall divide and pay over said respective installments to said stockholders respectively, in proportion to the number of shares held by each stockholder.

In addition to the annual rent above named, the second party will, on the first day of January of each year during the continuance of this lease, pay to the treasurer of the first party the further sum of three hundred dollars for the use and benefit of said first party.

The directors, clerk, and treasurer of said first party and the stockholders thereof, when necessary for attendance at the corporate meetings, shall be passed free at their own risk, over said railroad of the first party, while operated by the second party under this lease.

At least one train, with suitable accommodations for passengers each way daily, Sundays and extraordinary casualties excepted, shall be run over

said railroad and so as to make connections with trains of the road of the second party, passing in the same direction, without unreasonable delay at Plymouth, and such freight trains shall be run as may be reasonably required to accommodate the public.

The first party shall have the right to construct any extensions or continuations of its road to any point limited in its charter or that may be fixed by any extension thereof, that may be agreed to by the parties hereto, without prejudice to the rights of either party under this indenture.

In case of any such continuation or extension, the second party shall have the right to the use, control, and operation of any such continuation or extension, for and during the remainder of the term of one hundred years aforesaid, with all the same rights, and subject to all the same duties and liabilities with reference thereto as are herein provided for, with reference to that part of the railroad included in this indenture, and shall also pay in to the amount of annual rent hereinbefore specified an amount equal to six per cent per annum on the cost of said extension, continuation, or addition to said railroad, payable in semi-annual installments at the same times in each year thereafter, and in the same manner as has been herein provided for the payment of the rent first provided for.

And shall also pay for the use of the first party, in like manner as the payment of the three hundred dollars aforesaid, a further sum in proportion of one hundred dollars yearly for each one hundred thousand dollars of the cost of such extension, continuation, or addition.

And the parties agree to execute all proper papers and documents required to carry out the provisions of any agreement contained in this indenture.

And the said second party shall be bound to carry out the provisions of this indenture, relating to such extension, continuation, or addition.

And it is agreed that if by reason of unusual accident, casualty, or other cause, there shall be occasion to expend any amount exceeding one thousand dollars beyond the amount placed in the hands of the Boston, Concord & Montreal Railroad for the purpose of completing and equipping the railroad hereby leased, or for any cause relating to the construction or equipment of the railroad aforesaid, not properly chargeable to the proper and ordinary operation and maintenance of said railroad, the amount of such expenditure shall be determined by the parties, and the capital stock of the first party shall be increased to that amount, and shares of stock to that amount shall be issued and delivered to the second party, its successors and assigns, with authority to sell the same at not less than their par value to pay such expenditure, and the interest on such increased capital at six per cent per annum shall be paid by the second party in addition to the rent herein provided for, to be paid in the same manner and at the same time as the other rent herein provided for and agreed to be paid.

No officer or stockholder of either party shall be held liable for any of the contracts of either party under this lease.

In witness whereof, the said parties have (in triplicate) hereto set their corporate names, and affixed their corporate seals, this thirty-first day of March, 1883.

PEMIGEWASSET VALLEY RAILROAD,

[Seal.]

By J. THOMAS VOSE, *President*.
S. N. BELL, *Treasurer*.

BOSTON, CONCORD & MONTREAL RAILROAD,

[Seal.]

By J. THOMAS VOSE, *President*.
EDWARD D. HARLOW, *Treasurer*.

Signed, sealed, and delivered in presence of

N. P. HUNT.

HENRY E. BURNHAM.

EMIL A. DANIELSON.

FRANK L. SUTERMEISTER, JR.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. March 31, 1883. Personally appearing the said Pemigewasset Valley Railroad, by S. N. Bell, its treasurer, acknowledged the above lease to be the free act and deed of the corporation.

Before me,

[Signed] N. P. HUNT, *Justice of the Peace.*

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. March 31, 1883. Personally appearing the said Pemigewasset Valley Railroad by J. Thomas Vose, its president, acknowledged the above lease to be the free act and deed of said corporation.

Before me,

[Signed] EDWARD D. HARLOW, *Justice of the Peace.*

It is agreed by the parties hereto, in consideration of the thirty thousand dollars paid by the first party to the second party, that the sum named as the annual rent of the premises within named shall be increased to the sum of thirty-one thousand eight hundred dollars, instead of the thirty thousand dollars herein named, and that the said increased sum shall be paid at the same time and in the same manner as has been provided therein for the payment of the sum of thirty thousand dollars, and that such increase shall not in any way affect any of the other provisions of said lease, and that such increase shall take effect from the date of this lease.

In witness whereof, the said parties have hereto set their hands and affixed their corporate seals this fourteenth day of April, 1883.

PEMIGEWASSET VALLEY RAILROAD,

[Seal.]

By J. THOMAS VOSE, *President.*

S. N. BELL, *Treasurer.*

BOSTON, CONCORD & MONTREAL RAILROAD,

[Seal.]

By J. THOMAS VOSE, *President.*

EDWARD D. HARLOW, *Treasurer.*

In presence of

EMIL A. DANIELSON.

FRANK L. SUTERMEISTER, JR.

Schedule of engines, cars, etc., delivered by Pemigewasset Valley Railroad to the Boston, Concord & Montreal Railroad, and referred to in lease from the former to the latter, dated March 31, 1883:

Engine Thornton.	\$13,500.00
Engine Campton.	13,500.00
Forty stake cars, Nos. 1 to 40, 30 feet long; eight stake cars, Nos. 43 to 50, 30 feet long; two stake cars, Nos. 41 to 42, 32 feet long.	20,000.00
Nine stake cars, Nos. 51 to 59, 32¾ feet long; twenty-one stake cars, Nos. 60 to 80, 33 feet long; forty-five box cars, Nos. 81 to 125, 32½ feet long inside.	35,500.00
Two passenger cars.	9,342.14
	<hr/> \$91,842.14

LEASE.

BOSTON, CONCORD & MONTREAL RAILROAD TO BOSTON & LOWELL RAILROAD.

This indenture, made this nineteenth day of June, 1884, by and between the Boston, Concord & Montreal Railroad, a corporation existing by virtue of the laws of the State of New Hampshire, as first party, and the Boston & Lowell Railroad Corporation, a corporation existing by virtue of the laws of the Commonwealth of Massachusetts, and operating railroads within the State of New Hampshire, as second party, witnesseth:

Whereas, said first party is possessed of a railroad extending from Concord, New Hampshire, to a connection with the Grand Trunk Railway at Groveton Junction, in said State, and a branch railroad from Wing Road, so called, on said railroad, to the base of Mount Washington, also in said State, and is also lessee of the Pemigewasset Valley Railroad, in said State;

And, whereas, said first party has agreed to grant, and said second party has agreed to take and accept, a lease of said railroad of the first party as aforesaid, upon the terms and conditions hereinafter set forth;

Now, therefore, said first party, in consideration of the rent, covenants, and agreements hereinafter mentioned, to be paid, kept, and performed by the second party, has leased and demised, and does hereby lease and demise unto said second party, the railroad of said first party, extending from Concord, New Hampshire, to Groveton Junction, in said State, and the branch railroad from Wing Road, so called, to the base of Mount Washington, in said State, as said railroad and branch are now located and constructed, together with all the lands, stations, and buildings used or occupied by said first party for railroad purposes upon or along said route, and all the right, title, and easement of said first party in and to the lands lying within or without the limits of the location of said railroad and the use thereof, with full right and authority to said second party to hold and use said rights, easements, and privileges as fully as said first party might or could if these presents had not been executed, a plan of which lands and location accompanies this lease; said demised premises being subject to the mortgages on the same.

To have and to hold to said second party for and during the term of ninety-nine years from and after the first day of June, 1884, the said second party yielding and paying unto said first party the rent hereinafter mentioned, and keeping and performing all the covenants and agreements of said second party hereinafter contained; but nothing herein contained is intended to operate to the prejudice of, or to qualify in any manner, the rights or franchises of said first party, conferred by its charter and the laws of the State of New Hampshire, or to curtail any powers or franchise of said first party, or prevent the exercise thereof in such manner as may be necessary for the protection of the interests of its stockholders.

And said first party, being also in possession as lessee of the Pemigewasset Valley Railroad under a certain indenture of lease, a copy of which is attached hereto, does hereby make, constitute, and appoint the said second party its agent or attorney to manage and operate said railroad under and in pursuance of the terms and provisions of said indenture of lease held by said first party, and to take the earnings thereof to its own use during the remainder or unexpired part of the term of said lease, with all the rights, powers, and privileges of the first party in and concerning the same, upon condition, however, that said second party shall pay all sums becoming due or payable from said first party, from and after June 1, 1884, to said Pemigewasset

Valley Railroad, under or by virtue of said indenture of lease, and perform the other covenants and agreements in said lease to be done and performed by said first party.

And said second party hereby covenants and agrees that it will assume as its own all the duties and liabilities of said first party under the lease of said Pemigewasset Valley Railroad, and will operate said leased road pursuant to law in every respect, and will indemnify and save harmless said first party against all loss, expense, or liability hereafter arising from the operation of said Pemigewasset Valley Railroad under said lease, or the failure and neglect to operate the same safely and conveniently and without injury to persons and property.

And said first party covenants and agrees with said second party that it will, during the continuance of this agreement, and upon request of said second party, extend or renew the aforesaid existing lease of said Pemigewasset Valley Railroad, and take and execute such other contracts of lease or otherwise with connecting railroads as may be agreed upon and desired by said second party, said second party in such case assuming all responsibility for the performance of such new leases or contracts, and indemnifying said first party against all liability on account thereof.

And said second party further covenants and agrees that during the term hereby granted, it will, at its own cost and expense, maintain, preserve, and keep the railroad of said first party in as good condition and repair as the same now is, and will also maintain, preserve, and keep the side-tracks, station-houses, buildings, appurtenances, turn-tables, and fixtures pertaining to said railroad in as good order and repair as the same now are, so that there shall be no depreciation in the general condition thereof, or of said railroad, its tracks or superstructure, at any time during said term.

The parties hereto further agree that an examination of the property of said first party transferred by this lease shall be made by John J. Sanborn in behalf of said first party, and John F. Crockett in behalf of said second party, who shall report in writing upon the condition in which the same may be at the time this lease goes into effect, and said report shall accompany this instrument of lease; and if said Sanborn and Crockett shall disagree as to the condition of said property, they shall choose a disinterested person as umpire, who shall not be connected with either road, whose decision in such disputed matters shall be final.

And it is further agreed that there shall be, annually, in the month of September, an examination of the property leased by such persons as the parties shall designate for that purpose, and if, on such examination, said railroad or its superstructure shall be found or pronounced to be depreciated, insufficient or inferior in quality or condition to meet all the requirements of this lease, then said second party shall make good such depreciation or deficiency, and shall forthwith expend upon said railroad or property the amount necessary to restore the railroad and property of the first party to its former condition, or pay over such amount, in money, to said first party to be so expended; such persons shall be selected, one by each party, and if they are unable to agree they shall select some disinterested person as umpire, whose decision in such disputed matters shall be final, and if either party shall fail to designate such person, the other person may proceed alone.

Said second party further agrees that it will, during the term of this lease, operate said railroad and leased road, fulfilling all the duties and liabilities of said first party in relation thereto, in the same manner as if said railroads remained in the possession and control of said first party; that it will protect and save harmless said first party against all actions or claims for injury to persons or property during said term by reason of any want of re-

pair of said roads or appurtenances, or casualties, or want of care and skill in the management of the same, or by reason of negligence or defects therein, and from any and all other causes whatever; that it will comply in all respects with the requirements of the law in the same manner as if said second party were itself the proprietor of said railroads, and will not subject said first party to any penalty or forfeiture for violation of law in any respect; and that at the expiration of said lease, or earlier termination thereof by the consent of said first party or otherwise, it will return said railroad of said first party in as good order and condition as the same now is, without depreciation of its general condition in any respect.

In case any additions or improvements of said railroad or property of said first party shall have been made by said second party at any time, such additions and improvements shall be paid for by said first party at the time this lease shall expire or be terminated, provided such additions and improvements, when exceeding three thousand dollars in expenditure in any single instance, shall have been made with the consent, in writing, of said first party.

Said second party further agrees that it will, at its own expense, keep the buildings and bridges of said railroads suitably insured against loss by fire, and will pay all public taxes, assessments, and charges whatsoever that shall be imposed upon said first party in its corporate capacity on account of its property, franchise, earnings, or capital stock during the term of this lease, and will do all other things requisite to enable the first party to obtain the full benefit of this lease and the guaranty herein mentioned.

Said first party covenants and agrees that it will keep up and preserve its organization during said term, and will perform all acts necessary and proper to enable said second party to enjoy the full benefit of all the provisions of this agreement, and the second party will pay to the first party annually, for this purpose, the sum of two thousand dollars.

Said first party shall assign, transfer, and grant to said second party, or to trustees for the benefit of the same, all its right, title, and interest in and to all its rolling stock, including that of roads leased or operated by it, subject to the lease in case of leased property, its tools in shops, including machinery, its stock and materials on hand for use in the operation and repair of the road and property, all stocks, bonds, and other miscellaneous property owned by said first party, all real estate, hotel property, buildings, etc., not connected with or incident to the operation of said road, any interest in stage lines, mountain roads, steamboats, and wharf property, and all securities of any nature whatsoever, for the sole benefit and use of said second party, to be disposed of, and the proceeds thereof to be applied to the use of said second party, subject to any mortgages on the same if the same are included in such mortgages. A schedule of said property is attached to this instrument. Said first party will, if desired by said second party, execute a formal conveyance of the whole or any portion of the property aforesaid to trustees, for the benefit of said second party.

Said second party, in consideration of this lease and the transfer and assignment herein mentioned, agrees to ascertain monthly and render to said first party a statement of the gross receipts of the Northern, Concord & Claremont (N. H.), Peterborough & Hillsborough, Boston, Concord & Montreal, and Pemigewasset Valley railroads, and a sum equal to twenty-five per cent of said gross receipts, less the sum of two hundred thousand dollars per annum, shall be set aside for said Boston, Concord & Montreal Railroad as rental for the use of its road and the Pemigewasset Valley Railroad; and said second party, in consideration aforesaid, guarantees to said first party that the balance of said twenty-five per cent remaining after the deduction of

two hundred thousand dollars per annum before mentioned shall be equal to a sum sufficient to pay the interest upon all the indebtedness of the first party, a schedule of which shall be attached hereto, and the rental due the Pemigewasset Valley Railroad under its lease to said first party, and six per cent upon the outstanding shares of the preferred stock of said first party for the first year of this lease, and five per cent upon the same for each succeeding year thereafter during its continuance; and said second party covenants and agrees with said first party that it will, as often as once in three months during the continuance of this lease, to wit, on the first days of July, October, January, and April in each year, pay over to said first party in lawful money, any difference between the rental herein provided for as being equal to twenty-five per cent of the gross receipts of the Northern, Concord & Claremont (N. H.), Peterborough & Hillsborough, Boston, Concord & Montreal, and Pemigewasset Valley railroads, less two hundred thousand dollars per annum and the guaranty herein given; *provided*, that if any extension of the Pemigewasset Valley Railroad, by agreement with the Boston & Lowell Railroad, shall be made under the provisions of the lease of that road, that the interest on the bonds or the dividends on the capital stock issued therefor shall constitute an addition to the rent herein agreed to be paid.

Payments of rental shall be made at the request of the treasurer of the first party at the office of the treasurer of the second party, at such convenient times during the year as may best meet the charges coming due upon the indebtedness and stocks herein provided for; settlements shall be made quarterly, and payments made of the amounts due on the days aforesaid.

The business of the roads by means of which a sum equal to twenty-five per cent of the gross receipts may be ascertained, and in which gross receipts said first party has an interest, shall be confined, so far as practicable, in its route to destination to the lines herein named, except during such years as the gross receipts shall equal for the year the sum of \$2,000,000, and no division shall be made with the roads operated and controlled by the second party, which shall give to said second party more than a *pro rata* proportion based on the actual number of miles hauled, and if any sum is paid as proportion beyond the line of roads herein named less than a *pro rata*, the difference between said sum and a *pro rata* shall be considered as gross receipts in which said first party is entitled to have the benefit in computing said twenty-five per cent.

It is further understood and agreed that in case the gross receipts of the roads herein mentioned, as so ascertained, shall exceed in amount in any one year the sum of \$2,000,000, the rental of said first party shall not in such event exceed twenty-five per cent of said sum of \$2,000,000 (or \$500,000 less the \$200,000 herein before set apart), it being intended that the maximum amount to be received by said first party as rent, including the rental of the Pemigewasset Valley Railroad, shall be limited to the sum of \$300,000 in any one year, except in case of capital or funds furnished or liability assumed by said first party at the request of said second party, and except in case of an extension of the Pemigewasset Valley Railroad as aforesaid, which cases shall be provided for by an addition to this lease.

Said second party agrees to lend its aid to said first party in refunding its indebtedness in such mode as may be found most for the interest of both parties, and all reductions in the interest charges occurring shall reduce the amount of the guaranty herein provided for.

The second party agrees to transport the stockholders of the first party to and from the annual or special meetings of said first party free of charge, and to grant annual passes to the directors, treasurer, and clerk of said first party, to facilitate the transaction of the business of said first party, during

the continuance of this lease, upon the roads operated and controlled by said second party.

Said second party covenants and agrees that it will not assign or underlet the premises hereby demised, or part with possession thereof, except with the written consent of the first party; that it will not suffer said railroad of the first party to get out of repair or become depreciated in its general condition, except by the ordinary wear and use thereof, to be made good by renewal as aforesaid.

And it is further covenanted and agreed by said second party that in case of breach of any of its covenants herein contained, or in case that the estate hereby created and vested in said second party shall be taken from it by legal proceedings of any kind, or in case of default in payment of the rent above mentioned, if the same or any part thereof shall remain unpaid for a period of thirty days after becoming due and payable, and after demand in writing made therefor, then said first party may enter upon and take full possession of the premises hereby demised, and all depots, shops, buildings, tracks, and other permanent property, and remove said lessee and all persons claiming under it from said premises, and thereby determine the estate hereby granted, using whatever force may be necessary for that purpose; and said second party agrees that it will not, in such event, hinder or prevent the entry of said first party to recover the possession of said demised premises as of its former estate, and shall account for and pay over the value of the property so assigned and transferred, less such sums as may have been paid to make good the guaranty aforesaid above the twenty-five per cent.

And said second party hereby covenants and agrees that the demised premises, and all books and accounts kept by it relating to the operation of the demised premises and the business of the other roads herein named, so far as may be necessary and proper in determining the gross receipts whereby the amount to be paid as rent is to be ascertained, and the business and improvements, renewals and repairs thereof, shall at all reasonable hours and times be open to the inspection and examination of the directors or officers of the first party, or of such person or persons as they may appoint from time to time to examine the same.

Existing contracts incident to the operation and management of the road of said first party when in writing, copies of which are attached to this lease, shall be assumed by said second party.

Said first party hereby reserves for its own use the rooms and safe in the second story of the building used for offices, at Plymouth, N. H., or will accept in lieu of the same some other equally convenient rooms which shall be satisfactory to said first party, at the expense of said second party.

The parties hereto hereby mutually agree that they will make such further agreements and assurances as will be necessary to effectually carry out the true intent and meaning of this lease, and to that end will aid, each the other, in procuring such legislation as may be needed therefor.

In case of any disagreement at any time or from time to time as to the true intent and meaning of this indenture, or as to the claims of either party under said indenture, the same shall be referred to a board of three disinterested referees, one to be selected by each party hereto, and the third by the two selected as aforesaid, whose decision, or the decision of a majority of whom, shall be final and binding upon both parties.

In witness whereof, the Boston, Concord & Montreal Railroad, by its president and treasurer, agents thereto duly authorized, and the Boston & Lowell Railroad Corporation, by its president thereto duly authorized, have to this and one other instrument of even date and tenor herewith, signed their cor-

porate names and affixed their corporate seals, the day and year first above mentioned.

FOR THE BOSTON, CONCORD & MONTREAL RAILROAD.

J. THOMAS VOSE, *President*. [Seal.]

EDWARD D. HARLOW, *Treasurer*.

Witness:

E. A. DANIELSON.

S. N. BELL.

THE BOSTON & LOWELL RAILROAD CORPORATION,

By its *President*, J. G. ABBOTT. [Seal.]

Witness:

C. S. MELLEN.

C. E. A. BARTLETT.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. June 19, 1884. Then personally appeared J. G. Abbott, president, and acknowledged the foregoing instrument to be the free act and deed of the Boston & Lowell Railroad Corporation.

Before me,

C. E. A. BARTLETT, *Justice of the Peace*.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, June 19, A. D. 1884. Personally appearing the said Boston, Concord & Montreal Railroad, by its president and treasurer aforesaid, acknowledged the above instrument to be the free act and deed of said corporation.

Before me,

WILLIAM BRECK, *Justice of the Peace*.

LEASE

OF MANCHESTER & LAWRENCE RAILROAD TO BOSTON & MAINE RAILROAD.

This indenture, made in triplicate, this first day of June, 1887, by and between the Manchester & Lawrence Railroad, a corporation existing under and by virtue of the laws of the State of New Hampshire, party of the first part, and hereinafter denominated the "Lessor," and the Boston & Maine Railroad, a corporation existing under and by virtue of the laws of the Commonwealth of Massachusetts, and under and by virtue of the laws of the states of Maine and New Hampshire, party of the second part, and hereinafter denominated the "Lessee," witnesseth:

That the said parties each for itself, its successors and assigns, and each in consideration of the grants, covenants, and engagements herein made by the other, have granted, covenanted, and agreed, and do hereby grant, covenant, and agree, each to and with the other, and its successors and assigns, as follows, to wit:

I.

The lessor doth grant, demise, and lease unto the lessee, its successors and assigns, its railroad and property of every description, contained in the inventory and schedule hereafter referred to, including therein its railroad and lands wherever situated, its branches, tracks, side-tracks, road-bed, superstructure, station-houses, depot grounds, depots, viaducts, bridges, piers, shops, buildings, fixtures, engines, cars, rolling stock, machinery, tools, furniture, telegraph apparatus, equipment, material, and supplies, and all rights, franchises, easements, privileges, and appurtenances thereto belonging, together with the right to demand and receive all tolls, rent, revenue, income, and profits of the demised premises; including also therein all the right, title, and interest of the lessor in and to any bonds, obligations, and contracts of or with, or claims upon other railroads, corporations, or individuals, and all income or other advantages and benefits to be derived therefrom, a schedule of which stock, bonds, contracts, and claims is hereto annexed; hereby assigning and transferring unto the lessee its railroad and railroad property with the franchises appertaining to said railroad, and the property hereby demised, and its assets of every description, excepting and reserving all claims against the Concord Railroad, and all balances that may be found due upon accounting with the corporation or upon any adjustment or compromise thereof, and the cash, cash securities, and the shares of stock in the Suncook Valley and Mount Washington railroads now held by the lessor.

To have and to hold all and singular the demised premises to the lessee, its successors and assigns, for and during the term of fifty years from and after the first day of September, A. D. 1887, the said lessee keeping and performing the covenants herein contained, on its part to be kept and performed, and yielding and paying rent for the said premises to the amount and in the manner following, to wit:

1. The lessee shall pay the operating expenses of the lessor, there being included therein as part thereof all repairs and renewals; all expenditures arising out of any contract, obligation, business, negligence or misfeasance or however otherwise arising from and after the inception of this lease and in any way connected with the use and operation of the demised premises, and including damages to persons or property, insurance, all taxes of every description, federal, state, or municipal, upon property, business, franchises, or capital stock; any expenditures hereinafter declared to be operating expenses; and the organization expenses of the lessor, for which there shall be paid to the lessor at the end of each successive three months, during the term of this lease, the sum of five hundred dollars (\$500).

2. The lessee shall pay to the lessor on the first day of November, A. D. 1887, the sum of sixteen thousand six hundred sixty-six and 67-100 dollars (\$16,666.67); shall thereafter pay to the lessor on the first days of May and November in each year during the term of this lease the sum of fifty thousand dollars (\$50,000); and at the expiration of this lease shall pay to the lessor the sum of thirty-three thousand three hundred thirty-three and 33-100 dollars (\$33,333.33).

II.

The lessee shall assume and defend all suits against the lessor arising out of or in any way connected with the use and operation of the demised premises, from and after the inception of this lease, and pay all judgments obtained thereon.

III.

The lessee shall have the right of voting on all stock owned by the lessor in any other railroad or corporation, which stock shall not be sold or otherwise disposed of except by the mutual consent of the lessee and the lessor.

IV.

The lessee shall have the right to make such changes in the tracks, sidings, stations, and terminal grounds of the lessor as the safety and accommodation of the public and the convenient and economical transaction of business may in its judgment require; *provided, however*, that at the expiration or earlier termination of this lease the lessor's tracks, sidings, stations, and terminal grounds shall be restored to it in as good order and repair as the same are now in, and so that the same shall be equally well fitted for the independent use and operation of its own road by the lessor.

The lessee shall have the right to make permanent additions to and improvements upon the demised premises, which shall include any increase in track mileage, buildings, structures, and bridges, additional to those existing at the inception of this lease, and buildings, structures, and bridges replacing those existing at the inception of this lease, so far as the cost of such new buildings, structures, and bridges exceeds the cost of restoring such old buildings, structures, and bridges to as good a condition as when new. Such permanent additions and improvements shall be paid for by the lessor at the expiration or earlier termination of this lease, the value thereof to be determined, unless agreed upon by the parties, by the board of arbitrators provided for in Article IX. of this lease.

The lessor shall make and execute such other leases and operating contracts with other railroad companies as the lessee may request; *provided, however*, that every such lease or contract, if the lessor shall so elect, shall, by its terms, expire at or before the expiration of the term of the lease created by these presents, and that all obligations, liabilities, and losses arising therefrom shall be assumed and borne by the lessee exclusively, and the lessee shall indemnify the lessor against any claim arising by reason of such lease or contract.

V.

The lessee shall use and operate the railroad property herein demised in accordance with the charter of the lessor and the laws of the State of New Hampshire; shall furnish all cars, engines, rolling stock, and equipment of every description required, in addition to the like property hereby demised for the due operation of the railroad operated under and by virtue of this lease; shall keep the demised premises reasonably insured, and shall apply the proceeds of any insurance to restoring and replacing the property destroyed, or to making permanent improvements not in the nature of ordinary repairs upon the demised premises; shall apply the proceeds of rolling stock, equipment, and other personal property herein demised which it may deem advisable to sell, and which it is hereby authorized to sell at its discretion, so as to substitute therefor like property of equal value; shall replace buildings or structures on the demised premises taken down or removed, and which the lessee is hereby authorized to take down or remove at its discretion, with other buildings, structures, and permanent improvements upon the demised premises of equal value; shall furnish the directors of the lessor with free annual passes over the railroads operated by the lessee during the continuance of this lease; shall permit the demised premises to be inspected annually by some competent person appointed by the lessor, who shall re-

port to the lessor the condition of said premises, and shall, for the purpose of such inspection, be furnished with free transportation over the railroad operated by the lessee under this lease, and shall receive a reasonable compensation for his services to be paid as part of the lessor's operating expenses; shall make all returns required by law, and shall furnish the lessor with such abstracts of its accounts as shall enable it to make all returns required of the lessor; shall not assign this lease, nor underlet, nor permit any other party to occupy or use the whole nor any part of the demised premises, except such portions thereof as may not be required for railroad uses, without the written assent of the lessor first had and obtained; shall keep the demised premises in the same good order and condition as the same are when received by the lessee under this lease; shall cause all rolling stock substituted for that herein demised and added thereto to be distinguished by appropriate names, numbers, or letters; and at the end of the term of this lease, or at any earlier termination thereof from any cause whatever, shall surrender the demised premises and every part thereof (to be ascertained and determined according to the inventory hereinafter provided for) in the like good order and condition in which they are at the inception of this lease or may be put during the term, the amount of materials and supplies to be surrendered or accounted for to the lessor to be equivalent in value to the amount on hand at the inception of this lease as shown by said inventory.

VI.

That the property herein demised and to be accounted for at the expiration or earlier termination of this lease may be accurately determined, there shall be made, as of the day when this lease takes effect, a full, complete, and particular inventory, description, and appraisal of all the estate and property, real and personal, belonging to the lessor and coming into the possession of the lessee by the virtue of this lease. Such inventory, description, and appraisal shall be made by two competent persons, one selected by each party; in the case of their disagreement as to the appraisal, they shall refer the matter in difference to some third person, whose decision shall be final. Such inventory, description, and appraisal shall be made in duplicate and an original furnished to each party, and shall be evidence of the nature, value, and condition of the property demised at the inception of this lease in all cases in which any question of such nature, condition, or value may arise.

VII.

The lessor shall maintain its existence and organization as a corporation, and to that end shall comply with all the requisites of law; shall do all acts and things, and execute all legal instruments necessary and proper to put and secure the lessee in the full enjoyment of all the property, rights, franchises, and interests herein demised, and to carry into effect the true intent and meaning of this lease; and shall not increase its capital stock as now existing and issued without the assent of the lessee. To further secure the lessee in the beneficial enjoyment of the property, franchises, rights, and privileges herein demised and specified, the lessor constitutes the lessee its attorney irrevocable, with full right and power, at the lessee's expense, to use the name of the lessor in all legal proceedings and in all cases needful for obtaining, holding, and enjoying the premises herein demised and specified, and for all purposes consistent with the true scope and intent of this instrument.

VIII.

This lease is upon the condition that if the lessee shall fail for thirty days to make any semi-annual payment as stipulated for in clause 2 of Article I. hereof, then and in such case the lessor may at once enter upon the demised premises and upon any part thereof as for the whole and expel the lessee, and determine the estate hereby granted, and shall thereupon become seized and possessed of the demised premises and of every part thereof in its original right and as if this lease had never been made; and upon the further condition that if the lessee shall fail to perform all the covenants and agreements in this lease contained, and such failure shall continue for six months after written notice of such failure from the directors of the lessor to one of the directors of the lessee, the lessor shall have the like right to enter and expel the lessee and re-vest in itself its former estate in the demised premises and every part thereof; *provided, however*, that such entry by the lessor for breach of condition shall in no wise prejudice or impair any remedies to which it might otherwise be entitled for arrears of rent or preceding breach of covenants.

IX.

In case of any disagreement between the parties hereto as to the true intent and meaning of this lease, or any part thereof, or as to anything done under and by virtue of it or growing out of it, the matter in controversy shall be referred by written submission to the arbitration of referees to be chosen in the manner following: one shall be chosen by each of the parties hereto, or if either shall unreasonably fail or neglect to appoint a referee when requested by the other, the Board of Railroad Commissioners of the State of New Hampshire may, after due notice to the parties so failing or neglecting, appoint a referee; the third shall be selected by the two so chosen. The referees shall hear the parties after due notice to each of them, and if either party fail to attend after such notice, may proceed *ex parte*. The award in writing of said referees, or a majority of them, being duly notified to the parties shall be final and conclusive upon them.

In testimony whereof, the said parties by their respective presidents and treasurers, thereunto duly authorized, have caused their corporate seals to be hereto affixed and these presents to be executed the day and year first above written.

MANCHESTER & LAWRENCE RAILROAD,

[Signed] By CHAS. A. SINCLAIR, *President*.
HENRY CHANDLER, *Treasurer*. [Seal.]

BOSTON & MAINE RAILROAD,

[Signed] By GEORGE C. LORD, *President*.
AMOS BLANCHARD, *Treasurer*. [Seal.]

 CONTRACT

 BETWEEN THE EASTERN RAILROAD COMPANY AND PORTLAND, SACO
& PORTSMOUTH RAILROAD COMPANY.

Whereas, the Portland, Saco & Portsmouth Railroad Company and the Eastern Railroad Company are corporations duly established by law, owning roads which constitute a continuous line of railroad between Portland and

Boston; and whereas, for the more prudent, convenient, and efficient management of the business of said corporations and for the better accommodation of the public, as well as for the interests of said corporations, it is desirable to have said roads run, operated, controlled, and managed as one, so far as may be practicable.

Now, therefore, the said parties, each in consideration of the contracts and agreements of the other and to effect said objects, have agreed to make and do hereby make between themselves a perpetual business contract, in the manner following, to wit:

First. The Portland, Saco & Portsmouth Railroad Company hereby grants irrevocably unto the Eastern Railroad Company full power, authority, and liberty as the general agent of said Portland, Saco & Portsmouth Railroad Company to maintain, operate, and employ exclusively the railroad of the Portland, Saco & Portsmouth Railroad Company in the State of Maine, and every part thereof, for the transportation of persons, property, and mails, in as full and ample a manner, to all intents and purposes, as the said Portland, Saco & Portsmouth Railroad Company, or its president and directors for the time being, might or could have done, pursuant to and by virtue of the charter of said Portland, Saco & Portsmouth Railroad Company and the laws of Maine, if this contract had not been made.

And for the purposes aforesaid, it is hereby granted and agreed by said Portland, Saco & Portsmouth Railroad Company to and with said Eastern Railroad Company that said Eastern Railroad Company shall at all times, as agent as aforesaid, have the entire management of the railroad of said Portland, Saco & Portsmouth Railroad Company, and the full enjoyment thereof, and of all the lands now used or owned in connection therewith, and the privileges and appurtenances thereto belonging; all the depots, shops, buildings, bridges, tracks, and fixtures on said road and lands and used for the purposes of said road; all the furniture, equipment, machinery, and fixtures of every kind, now used or provided for use in connection with said road, and all the engines, cars, tools, materials for repairs, iron, fuel, oil, and stores belonging to said Portland, Saco & Portsmouth Railroad Company, and for any use or purpose connected with the construction, maintenance, use, or employment of said Portland, Saco & Portsmouth Railroad, being all the property of every nature and description, excepting records, books, papers, accounts, and muniments of title belonging to said Portland, Saco & Portsmouth Railroad Company, a schedule of the principal portion whereof is hereunto annexed, marked Schedule A.

And said Portland, Saco & Portsmouth Railroad Company hereby irrevocably grants full power, authority, and liberty to said Eastern Railroad Company, as its general agent, to use, employ, keep up, and maintain all and singular the premises, to the full extent of all the powers, rights, immunities, liberties, and franchises granted by the charter of the said Portland, Saco & Portsmouth Railroad Company and the acts of the Legislature of Maine, or that may be hereafter granted by the State of Maine, necessary for the most full, beneficial, and complete exercise of such agency, always, nevertheless, conformably and subject to all and singular the provisions of the charter of said Portland, Saco & Portsmouth Railroad Company and the laws of the State of Maine applicable thereto, and not otherwise.

Secondly. It is further agreed, in furtherance of the object and purposes of the parties hereto, that the said Eastern Railroad Company, as agent as aforesaid, shall be and is hereby authorized and empowered, at any time during the existence of its agency under this contract, to sell, exchange, dispose of, alter, amend, or repair any of the buildings, structures, rails, switches, ties, sleepers, cars, engines, apparatus and other movable property and things

whatsoever which now are, or at any time during the continuance of the agency of said Eastern Railroad Company under this contract may be, used or employed in, upon, or about or in connection with, or in the construction of the said Portland, Saco & Portsmouth Railroad, or which are or at any time during the continuance of this contract may be appendant or appurtenant thereto, or had, held, used, or enjoyed therewith; so, however, that in all cases there shall be substituted in the place of that which is sold, exchanged, or disposed of, or altered something which is of the like kind and equally good or better for the like purposes, and not otherwise, without the consent of the Portland, Saco & Portsmouth Railroad Company.

Thirdly. The said Portland, Saco & Portsmouth Railroad Company agrees with the said Eastern Railroad Company that it will, during the continuance of this contract, keep its said body corporate duly organized, and annually elect directors conformably to the charter of said Portland, Saco & Portsmouth Railroad Company and the laws of Maine, who shall elect a clerk, to reside in the State of Maine, a president of their Board, who shall also be president of the said corporation; and a treasurer of said corporation shall also be elected who shall keep separate and distinct books and accounts of the said Portland, Saco & Portsmouth Railroad Company.

And the said Portland, Saco & Portsmouth Railroad Company further agrees with the said Eastern Railroad Company that the said Portland, Saco & Portsmouth Railroad Company will not, nor shall its officers at any time, during the continuance of this contract, fail to comply in all things, or in any respect with its charter and the laws of the State of Maine, nor will it, nor shall they, do or omit to do, or cause or suffer to be done any act, matter, or thing whereby its charter or franchise may be forfeited, repealed, annulled, or in any way impaired or lost, during the continuance of this contract.

Fourthly. It is agreed between the parties hereto, that the said Eastern Railroad Company as agent, as aforesaid, shall at all times, during the continuance of its agency and of this contract, maintain and keep the railroad of said Portland, Saco & Portsmouth Railroad Company, with all the privileges and appurtenances thereto belonging; all the depots, shops, buildings, bridges, and fixtures on said road, and lands connected with or belonging thereto, or in any way appertaining to said railroad and used for the purposes of said railroad; all the furniture, equipment, machinery, and fixtures of every kind now used or provided for use in connection with said railroad, and all the engines, cars, tools, materials for repairs, iron, fuel, oil, and stores belonging to said Portland, Saco & Portsmouth Railroad Company, and for any use or purpose connected with the construction, maintenance, use, or employment of said Portland, Saco & Portsmouth Railroad, being all the property of every nature and description belonging to said Portland, Saco & Portsmouth Railroad Company, embraced in or referred to in the schedule hereunto annexed, marked A, and such as may be substituted or added pursuant to this contract in their place, in good and substantial repair and condition; and so as to afford at all times during the continuance of this agency and contract a safe, convenient, comfortable, regular, and adequate transportation for passengers, property, and mails; and will as such agent use and employ the same during the period aforesaid, for the transportation of persons, property, and mails which may be offered to be transported thereon, at such reasonable rates of fare or toll as are or may be established or demanded conformably to the charter of the said Portland, Saco & Portsmouth Railroad Company and the said acts of the Legislature of the State of Maine, and will from time to time as such agent, and in the name and to the use of the said Portland, Saco & Portsmouth Railroad Company, make such en-

largements, alterations, betterments, and improvements in the said railroad and its appurtenances, and additions to its structures, lands, cars, engines, machinery, and other things whatsoever, as shall under the circumstances be expedient and best for the interests of all parties concerned therein, and sufficient for the transportation of persons, property, and mails, and ample for the transaction of the business of transportation, as aforesaid, in accordance with the terms of the charter aforesaid and the acts of the Legislature of the State of Maine; and at the termination of the said agency and contract, when thereto required, will render up the property committed to its charge and all added thereto, or such as may be conformably to this contract substituted therefor, in such order, condition, and repair as by this contract it is agreed that the same shall be kept.

Fifthly. In the furtherance of the objects and purposes of the parties hereto, the said Eastern Railroad Company agrees with the said Portland, Saco & Portsmouth Railroad Company that the said Eastern Railroad Company will forthwith assume, and will pay, release, or discharge all the debts, liabilities, and obligations of every description of the said Portland, Saco & Portsmouth Railroad Company by reason of any matter or thing heretofore done, suffered, or transacted by said Portland, Saco & Portsmouth Railroad Company, or which it may hereafter become liable and bound to pay or do by reason of any acts or omissions of the said Eastern Railroad Company as the agent of the said Portland, Saco & Portsmouth Railroad Company under this contract, and will at all times save and keep the said Portland, Saco & Portsmouth Railroad Company harmless and indemnified from and against all claims, penalties, and forfeitures, suits and demands for, or by reason of any of the said debts, obligations, or liabilities, and all debts, obligations, liabilities, penalties, and forfeitures arising from any of the acts or omissions of the said Eastern Railroad Company as agent, as aforesaid, or otherwise, so that the said Portland, Saco & Portsmouth Railroad Company shall not suffer any loss or injury thereby; and will obey all orders, judgments, and decrees of any and all courts having jurisdiction in the premises, and save and keep the said Portland, Saco & Portsmouth Railroad Company, its property and franchise, from loss or injury thereby, and protected fully therefrom.

Sixthly. It is further agreed by the said Eastern Railroad Company with the said Portland, Saco & Portsmouth Railroad Company, that the said Eastern Railroad Company will, during the continuance of this agency and contract pay or cause to be paid semi-annually, on the first day of July and on the first day of January in each and every year, to the treasurer of the said Portland, Saco & Portsmouth Railroad Company for the time being, for the use of the stockholders of the said Portland, Saco, & Portsmouth Railroad Company, the sum of five dollars, in the currency of the United States for the time being, for each and every existing share of the capital stock of the said Portland, Saco & Portsmouth Railroad Company, being fifteen thousand shares, the first payment to be made on the first day of July next; and no additional stock shall hereafter be issued without the express consent, in writing, of said Eastern Railroad Company.

Seventhly. The said Eastern Railroad Company agrees with the said Portland, Saco & Portsmouth Railroad Company that the said Eastern Railroad Company will, at their own proper charge, pay and defray all the expenses of such repairs, enlargements, amendments, alterations, additions, betterments, and improvements as may be made during the continuance of this agency and contract in or to the said railroad of said Portland, Saco & Portsmouth Railroad Company, or its structures, embankments, bridges, houses, shops, buildings, vehicles, cars, engines, machines, apparatus, appurtenances, appendages, tools, implements, or other things whatsoever used or employed in

connection therewith, or for the use thereof, or in the business aforesaid, pursuant to this contract; and will, at their own proper charge, pay and defray all the expenses and charges of maintaining, using, and employing the said railroad of said Portland, Saco & Portsmouth Railroad Company, during the continuance of this agency and contract, and the expenses and charges of all and singular the doings and transactions of the said Eastern Railroad Company as the agent of the said Portland, Saco & Portsmouth Railroad Company in the premises, and will save and keep the said Portland, Saco & Portsmouth Railroad Company harmless and indemnified from and against all claims, liabilities, and demands on account of any of the matters aforesaid in this article mentioned or referred to; and will, in the agency created by this contract, during the continuance thereof, comply with all the provisions of the charter of the said Portland, Saco & Portsmouth Railroad Company and the acts of the Legislature of Maine consistent with said charter, and will carry on the business aforesaid, at all times subject thereto, and will save and keep the said Portland, Saco & Portsmouth Railroad Company, its president and directors, harmless and indemnified from and against all loss or damage consequent upon any infringement thereof, or non-compliance therewith, on the part of the said Eastern Railroad Company, either as agent, as aforesaid, or otherwise.

Eighthly. It is agreed by the said Eastern Railroad Company with the said Portland, Saco & Portsmouth Railroad Company that the said Eastern Railroad Company shall and will at all times, during the continuance of the said agency and contract, keep, and from time to time, and as often as required, render or cause to be rendered a full, true, and perfect account of the doings and transactions, payments and receipts of whatever name or nature done, transacted, made, or received by the said Eastern Railroad Company, or its agents or attorneys for it, in, for, or about, or by reason of any of the matters in this contract mentioned, contained, or referred unto, whether the same be on account of or relative to capital, construction, or income, or however otherwise; and it is agreed that the several items shall be debited or credited, as the case may require, so that the whole earnings, income, and expenses of the said Portland, Saco & Portsmouth Railroad Company from all sources may be shown fully and perfectly in detail thereby.

Ninthly. It is agreed by the parties hereto, that the said Eastern Railroad Company as a compensation for its guaranties and agreements to indemnify and save harmless the said Portland, Saco & Portsmouth Railroad Company, and for its services in the agency, as provided in this contract, and for making the payments herein in that behalf mentioned, shall receive, retain, and have, to the said Eastern Railroad Company's own use, the full amount of all the rents, profits, income, earnings, and issues of the said railroad, and other property and things whatsoever in the charge of the said Eastern Railroad Company during the existence of the aforesaid agency and this contract, with authority to collect, demand, sue for, and enforce all claims, rights, and dues of said Portland, Saco & Portsmouth Railroad Company in its name, but to the use of the said Eastern Railroad Company during the continuance of this contract, subject always to the provisions of the charter of the said Portland, Saco & Portsmouth Railroad Company and the said acts of the Legislature of the State of Maine.

And it is further agreed that the said Eastern Railroad Company, as a further compensation, shall have the net income of the said Portland, Saco & Portsmouth Railroad Company which has accrued from and since the twentieth day of January now last past.

Tenthly. It is agreed by and between the parties hereto, that the said agency and contract herein provided for shall be terminated at the election of the

said Portland, Saco & Portsmouth Railroad Company by the failure, neglect, and omission of the said Eastern Railroad Company for and during the space of four months to make the payments provided for and specified in the sixth article of this contract, and if such default shall continue for the period of six months, as therein stipulated, and on the happening of that event, the said Eastern Railroad Company shall thereupon surrender to the said Portland, Saco & Portsmouth Railroad Company the said railroad with all its appurtenances and all the property belonging thereto or connected therewith, or in any wise belonging to the said Portland, Saco & Portsmouth Railroad Company and then being in charge of the said Eastern Railroad Company, with all the additions, improvements, and betterments which may have been made by the said Eastern Railroad Company in or to the railroad and property aforesaid, and shall also pay to said Portland, Saco & Portsmouth Railroad Company such sum of money as shall be necessary and sufficient to put the railroad structures, tools, machinery, and equipment, embankments, bridges, road-bed, track, and other property of the said Portland, Saco & Portsmouth Railroad Company in good and substantial order, condition, and repair, and to make the same sufficient and adequate for the transaction of the business of transportation of persons, property, and mails, according to the true intent and meaning of the stipulations and agreements of the said Eastern Railroad Company in this contract contained. Whether the said Eastern Railroad Company is guilty of such gross neglect or wanton abuse shall, at the request of either party, be at once submitted to the arbitration provided for in the eighteenth section of this contract, and the award on such submission shall be final and conclusive in the premises.

Eleventhly. The said Portland, Saco & Portsmouth Railroad Company agrees with the said Eastern Railroad Company that the said Portland, Saco & Portsmouth Railroad Company will not intentionally do, or cause or suffer to be done, any act, matter, or thing during the said agency which may hinder, prevent, impede, obstruct, restrain, interfere, or intermeddle with, or prejudice in any way the said Eastern Railroad Company in the full and free exercise and enjoyment of all the power, authority, and liberty as agent herein and hereby granted; saving always, all such acts absolutely and indispensably necessary to be done by the said Portland, Saco & Portsmouth Railroad Company or its officers only, in compliance with its charter, in order to preserve the same, and give validity and effect to the doings of the said Eastern Railroad Company in the agency aforesaid, and will not revoke or annul the said agency or powers hereby given, except for the causes set forth and mentioned in the last preceding article of this contract, and will at all times during the said agency, furnish all such documents, proofs, and evidences, and give all such powers as may be at any time necessary, or as may be deemed advisable, by counsel learned in the law, in prosecuting or in defending any claim, prosecution, or suit for or against the said Portland, Saco & Portsmouth Railroad Company, so far as the same may be in the power of the said Portland, Saco & Portsmouth Railroad Company, and will give to the said Eastern Railroad Company all reasonable aid and assistance therein, and will cause to be made and duly executed any bills of sale, transfers, deeds, and writings whatsoever, and do and execute any and every other act, matter, or thing which may be necessary or expedient and proper, in the opinion of counsel learned in the law, to give validity to or confirm any sales or sale, contracts or contract, transactions or transaction made, entered into, or transacted by the said Eastern Railroad Company as agent, as aforesaid, during the continuance thereof, and in pursuance of the contracts or agreements or grants herein contained.

Twelfthly. It is agreed between the parties that the directors for the time being, the treasurer and clerk of the Portland, Saco & Portsmouth Railroad Company, and their immediate families, shall have a free passage at all times on and over the said Portland, Saco & Portsmouth Railroad and on and over the said Eastern Railroad, and that on the day of every meeting of the stockholders of the said Portland, Saco & Portsmouth Railroad Company the said stockholders shall have a free passage over each of said railroads, to and from the place appointed for the holding of such meeting; and it is further agreed that the salary of the president, clerk, and treasurer of the said Portland, Saco & Portsmouth Railroad Company and the necessary expenses of the directors of the said Portland, Saco & Portsmouth Railroad Company in attending meetings required for the transacting the business of said Portland, Saco & Portsmouth Railroad Company shall be a part of the current expenses of using, employing, and operating the said Portland, Saco & Portsmouth Railroad, and shall be paid by the Eastern Railroad Company at its own proper cost and charge.

Thirteenthly. The said Portland, Saco & Portsmouth Railroad Company and Eastern Railroad Company hereby mutually agree and contract each with the other, that they will at all times, during the existence of this contract, observe and perform all the provisions of this contract in all respects, according to the true intent and meaning thereof; that neither will do, nor as far as it can control the same permit to be done, any act or thing to prevent, delay, or hinder the full execution of this contract, but will at all times do whatever it can to enable the same to be carried out, continued, and executed as hereby intended.

Fourteenthly. The said Portland, Saco & Portsmouth Railroad Company, in furtherance of the objects of this contract, and to make more easy the performance of the stipulations and agreements on the part of the said Eastern Railroad Company to be performed, authorizes and empowers the said Eastern Railroad Company as the agent of said Portland, Saco & Portsmouth Railroad Company, and in its name, to hire on such period of time as may be most advantageous, not exceeding thirty years, such sum or sums of money, not exceeding at any one time five hundred thousand dollars in the aggregate, which shall be expended in improving, enlarging, and repairing the railroad of said Portland, Saco & Portsmouth Railroad Company, its appliances and equipments, and for no other purpose, and which shall be disbursed and paid out for said purposes by the treasurer of said Portland, Saco & Portsmouth Railroad Company for the time being, upon production of satisfactory evidence that the expenditure has been truly and faithfully made, as aforesaid in this article; and that the said Portland, Saco & Portsmouth Railroad Company, for the purposes named in this article, will cause to be issued its notes or its bonds with suitable interest coupons, and in denominations according to the request of said Eastern Railroad Company, but so as that the full amount of such notes and bonds outstanding at any one time shall not exceed the sum of five hundred thousand dollars.

Fifteenthly. And the said Eastern Railroad Company further agrees to pay, at its own proper charge, all such sums as may from time to time become due as interest upon any and all bonds or notes issued by said Portland, Saco & Portsmouth Railroad Company, in pursuance of the agreements contained in the last preceding article of this contract and at the maturity of each and every such note or bond to pay the principal thereof, according to the tenor of such notes and bonds; and that it, said Eastern Railroad Company, whenever and as often as it pays any of such notes or bonds, or any of the interest coupons on the same, will, without unreasonable delay, deliver the same to the treasurer of said Portland, Saco & Portsmouth Railroad Company, to be canceled and destroyed.

Sixteenthly. It is further provided and agreed by the said Eastern Railroad Company that during the continuance of its agency under this contract, it will as often as once in five years, and whenever required to do so by the Portland, Saco & Portsmouth Railroad Company, furnish to said Portland, Saco & Portsmouth Railroad Company a full and detailed schedule of the property of the said Portland, Saco & Portsmouth Railroad Company, in the care and custody of said Eastern Railroad Company as agent as aforesaid, and will point out and exhibit the same to the president and directors of said Portland, Saco & Portsmouth Railroad Company, or any inspectors appointed by them, for examination, and if said property is at any such periodical examination found to be unsuitable in quality or condition, or insufficient in quality to comply with and conform to the stipulations, promises, and agreements of said Eastern Railroad Company in relation to repairs, enlargements, additions, and betterments in this contract expressed and set out, then that the said Eastern Railroad Company will on notice and demand, without unnecessary delay, make the same to comply with said stipulations, agreements, and promises, and will execute and deliver to said Portland, Saco & Portsmouth Railroad Company conveyances necessary to vest the title of the same in said Portland, Saco & Portsmouth Railroad Company.

Seventeenthly. It is hereby further mutually contracted and agreed that if at any time this contract and agency shall be terminated for any cause, then the said Eastern Railroad Company shall have the right to demand and receive, and the Portland, Saco & Portsmouth Railroad Company shall be held and promises to pay the value of so much of any improvements and betterments made to the railroad and property aforesaid by said Eastern Railroad Company as at the date of such termination of this contract is not reasonably needed for the then existing business of said Portland, Saco & Portsmouth Railroad; and the said Eastern Railroad Company shall be repaid without interest all amounts paid by it on account of the now existing debts, liabilities, and obligations, if any, of said Portland, Saco & Portsmouth Railroad Company which have not been re-imbursed to said Eastern Railroad Company from the profits of operating said road under this agency; *provided, nevertheless,* that if at the time of such termination the value of said Portland, Saco & Portsmouth Railroad Company shall have been, in the opinion of arbitrators selected as determined by the eighteenth section of this contract, for any cause diminished, then, and in that event, the said Portland, Saco & Portsmouth Railroad Company shall not be held to pay for any betterments or improvements, as provided in this section, to the extent of such diminution.

Eighteenthly. It is agreed by and between the parties hereto, that if any question and controversy, or dispute, should at any time arise between the parties as to the meaning and intent of this contract and agency, or any part thereof, or as to the nature or extent of the duties or obligations of the said parties, or either of them, under these presents, or as to whether and how far either has failed to comply with and perform such duties or obligations, or as to any other matter or thing arising from or growing out of the same, which shall not otherwise be amicably settled, the same shall be submitted in writing by the parties hereto, each party to be at liberty to put in a separate writing, and if either party shall neglect or refuse to submit the matter in writing, then the referees shall proceed upon the submission of the other party, and the submission shall be to the arbitration, determination, and award of the president for the time being of the Boston & Albany Railroad Company, the president for the time being of the Boston & Providence Railroad Company, and the president for the time being of the Old Colony & Newport Railroad Company; and if any one of said presidents for the time being

shall decline, or be unable, from interest or other cause, to act as referee either permanently while in office or for the occasion only, then to the arbitration, determination, and award of the two remaining presidents, and such other fit person as they may, from time to time, as occasion may require, appoint for the purpose; and if any two of the said presidents for the time being shall decline or be unable from interest or other cause to act as referees, either permanently while in office, or for the occasion only, then to the award of the remaining president, and such fit person as he may from time to time, as occasion may require, appoint, and such fit person as the same president, and the person thus by him appointed, shall appoint for a third referee; and if all the said presidents for the time being shall decline, or be unable from interest or other cause to act as referees, then to the arbitration, determination, and award of three fit persons, one to be appointed by each party in writing, and the third by the two thus appointed; and if either party decline, or neglect, or refuse on request in writing by the other party, to appoint a referee in any case for the purpose aforesaid, for the space of thirty days, then to the arbitration, determination, and award of the person appointed by the other party, and such fit person as the person thus appointed shall appoint for the party thus declining, neglecting, or refusing to appoint a referee, and such third person as shall be appointed to act as a third referee by the two thus appointed. And the referees in all cases shall duly notify the parties of the time and place appointed for hearing them and receiving their evidences and proofs, and if either party refuse or neglect to appear, the referees shall proceed *ex parte* to hear and determine the matter submitted in writing for their arbitration, determination, and award; and the award of the referees, or of the majority of them, made in writing within ninety days from the submission, shall in all cases, if there shall be no just exception existing thereto, be final and binding on the parties, so far as it relates to the matters thus submitted; and the parties to these presents agree with each other, that they respectfully will stand to, abide, and perform, so far as anything is to be done by each party, every award which may be duly made according to the provisions contained in these presents, and that the same, if duly made, and there be no just exception thereto, as well as the declining or refusing to join in or make such submission as aforesaid, or any act done with a view to revoke the same, shall be a perpetual bar to any action, claim, or demand founded upon any matter thus submitted in writing, except it be founded upon or according to or in pursuance of such award; and if in any case any award shall be for any cause void, or be set aside, or vacated, the matter submitted shall be again submitted to arbitration, determination, and award, in like manner as is hereinbefore provided, and so on *toties quoties* until an award has been made to which no just exception can be taken; and which, as well as a refusal or neglect to join in, or make the submission in writing, or act, done with a view to revoke the same, shall have like effect as in the case already provided.

In witness whereof, the parties hereto respectfully have caused these presents to be subscribed by their respective presidents, and countersigned by their respective treasurers, and their respective corporate seals to be hereunto affixed on the fourth day of May, in the year of our Lord one thousand eight hundred and seventy-one.

PORTLAND, SACO & PORTSMOUTH RAILROAD COMPANY,

By ICHABOD GOODWIN, *President*.

[Witness execution on part of P., S. & P. R. R. CO.]

NATHAN WEBB.

W. H. Y. HACKETT.

EASTERN RAILROAD COMPANY,

By GEORGE M. BROWNE, *President*.

[Witness to the execution by E. R. R. CO.]

J. K. FULLER.

W. H. WADLEIGH.

Countersigned by [Signed] ELIPHALET NOTT,
Treasurer Portland, Saco & Portsmouth Railroad Co.

Countersigned by [Signed] JOHN B. PARKER,
Treasurer Eastern Railroad Co.

LEASE.

PORTSMOUTH & DOVER RAILROAD COMPANY TO EASTERN RAILROAD COMPANY.

This indenture, made and concluded the first day of June, A. D. 1872, by and between the Portsmouth & Dover Railroad, a corporation existing under the laws of the State of New Hampshire of the one part, and the Eastern Railroad in New Hampshire, a corporation existing under the laws of said State of the second part, witnesseth :

That, whereas, the said Portsmouth & Dover Railroad, by act of the General Court of New Hampshire, approved July 7, 1866, are authorized and empowered to locate, build, and maintain a railroad from any point on said Eastern Railroad in the city of Portsmouth, through the intermediate towns to any point on the Boston & Maine Railroad, or the Dover & Winnipiseogee Railroad in the city of Dover, and to enter upon and use either of said railroads, or any part of the same, paying therefor such rates of toll, and complying with such regulations, as may be mutually agreed upon by said corporations, respectively, or as the said Legislature may from time to time prescribe; and are likewise authorized to construct bridges, with suitable draws or passages, across any navigable waters on said route, and in connection therewith, may, if they shall deem it expedient, erect and maintain a toll-bridge for the use of teams, carriages, and passengers, and collect tolls therefor; and, whereas, by act of said general court, approved July 6, 1867, the said Portsmouth & Dover Railroad may, before or after the completion of the said railroad, lease the same, or any part thereof, to any railroad corporation whose road may connect with their road, on such terms and for such time as said roads may agree; all of which, with other things, is in said acts more fully set forth.

In consideration of the premises and of the covenants on the part of the party of the second part, herein contained, the said Portsmouth & Dover Railroad doth hereby lease and demise unto the said Eastern Railroad in New Hampshire their said railroad above described, and every part thereof, as the same is or may hereafter be located and builded, with all the appurtenances thereof, with the entire right to use the same through the whole extent thereof, together with all the depots, buildings, structures, and real estate belonging to said Portsmouth & Dover Railroad, or which may hereafter be acquired by the same, and all toll-bridges which shall be constructed on said route under such charter, to have and to hold the said demised premises, with all the rights, easements, and appurtenances to the same belonging, to them, the said Eastern Railroad in New Hampshire, and their successors and assigns, for and during the term of fifty years from and after the time when the Portsmouth & Dover Railroad shall be so far completed as to be fit for

ordinary use as a railroad; and they, the said Eastern Railroad in New Hampshire, yielding and paying therefor as rent a sum which shall be equal to three per cent upon each share in the capital stock of said Portsmouth & Dover Railroad, payable to the stockholders, individually, of said Portsmouth & Dover Railroad, in proportion to the shares holden by them, at the expiration of every six months during said term, and in addition thereto one half of the net income or earnings of said Portsmouth & Dover Railroad, which shall accrue to or be received by said Eastern Railroad in New Hampshire, over and above said three per cent semi-annually during the time aforesaid.

In calculating said net earnings or income, the receipts for passengers and merchandise transported on any part of said railroad, between Dover and Boston, and for mails, express business, and all other income received by the said Eastern Railroad in New Hampshire, from business coming or going over the whole or any part of both of said railroads, to which the use of the Portsmouth & Dover Railroad shall contribute, shall be credited to the several railroads *pro rata* per mile carried.

The Eastern Railroad in New Hampshire shall be at liberty to construct and complete all such buildings and other fixtures upon the demised premises as they shall find necessary or convenient for the use of said demised premises, and may, from time to time, during said term, repair, renew, or improve the track, buildings, fixtures, and other property of said Portsmouth & Dover Railroad, and the reasonable cost of all such structures, repairs, and improvements, including the cost of maintaining said Portsmouth & Dover Railroad, and all taxes that shall be assessed upon said demised property, or the said Portsmouth & Dover Railroad during said term, and the rents of all real estate which it shall be found necessary or convenient to hire for the use and enjoyment of said Portsmouth & Dover Railroad during said term, and the reasonable cost of running said Portsmouth & Dover Railroad, including the hire, use and wear of all the engines, cars, or other rolling stock or machinery used thereon, the cost of fuel, salaries, wages, and all other just expenses of running or operating the said Portsmouth & Dover Railroad, or conducting the business thereof, the cost of maintaining the said organization of said Portsmouth & Dover Railroad Corporation, all just claims for damages that may be sustained by any person or persons on or by reason of said Portsmouth & Dover Railroad, or for loss of damage to property that may be transported on said Portsmouth & Dover Railroad, or for which the party of the second part may be holden liable as common carriers thereon, the cost of all insurance, and generally all charges that may justly and reasonably be incurred by the said Eastern Railroad in New Hampshire, their successors or assigns, in conducting the business of or on said Portsmouth & Dover Railroad, and all proper interest, expenses, and incidental charges that may accrue on any loans necessary to the construction or completion, repairs or improvements of said Portsmouth & Dover Railroad, shall be deducted from the gross earnings of said Portsmouth & Dover Railroad, and the remainder shall be taken to be the net income thereof, for the purpose above set forth.

The capital stock of the Portsmouth & Dover Railroad shall be fixed, with the approbation of the said Eastern Railroad in New Hampshire, at a sum equal, as near as practicable, to the actual cost and expenses of building the road up to the time when it shall be delivered into the hands of the Eastern Railroad in New Hampshire as aforesaid; and to meet further cost, enlargement, and permanent improvement of the Portsmouth & Dover Railroad, additional stock may be created or issued with the consent of the directors of both railroads, but not otherwise.

And the said Portsmouth & Dover Railroad covenants with the said Eastern Railroad in New Hampshire, that the said Portsmouth & Dover Railroad will, without unnecessary delay, proceed to open subscription for stock, and will endeavor to cause the same to be filled to an amount sufficient to build their said railroad, and that they will, with the assessments to be laid upon said stock, proceed to construct and complete their railroad as above described, with the usual and necessary appurtenances, in such manner, with such termini, and upon exact route as shall be agreed upon by the directors of both parties aforesaid, or as shall be fixed and determined by some agent or agents, to be mutually agreed upon and appointed by said directors, and will deliver the same to said Eastern Railroad in New Hampshire, or their assigns, as soon as the same shall be completed; that they will maintain the lawful organization of said Portsmouth & Dover Railroad, according to the laws of New Hampshire, during said term; and that the said Eastern Railroad in New Hampshire, their successors and assigns, may and shall have the peaceable and exclusive use and occupation of the said Portsmouth & Dover Railroad and property, with the fixtures and appurtenances to the same, for and during the full term of fifty years aforesaid, free from the interference of the said Portsmouth & Dover Railroad, and of all persons claiming by, from, or under them, subject to such limitations and conditions, however, as are imposed by the laws of this State and by the covenants herein contained. And the said Eastern Railroad in New Hampshire, for themselves and their successors, do covenant with the said Portsmouth & Dover Railroad, their successors and assigns, that they, the said Eastern Railroad in New Hampshire, will cause the said Portsmouth & Dover Railroad to be run and used during the said term according to the said charter and laws of this State, with due and reasonable regard to the convenience of the public, and especially of the cities of Portsmouth and Dover, with their own engines, cars, and movable railroad stock, and their own servants and agents; that they, the said Eastern Railroad in New Hampshire, will, during the term aforesaid, pay all the costs, charges, and expenses of running said Portsmouth & Dover Railroad, and of managing the business thereof, and all taxes that may be assessed upon the same or the property thereof, and all rents which may become due for buildings or other property hired for or used in connection with said Portsmouth & Dover Railroad, the reasonable and necessary cost of maintaining the organization of said Portsmouth & Dover Railroad Corporation, all just claims for damages which may be sustained by any persons, or by reason of the use of said Portsmouth & Dover Railroad, or for loss or damage to property that may be transported on the same, all insurance, and generally all such charges, expenses, and damages as may be incurred in using, running, and conducting the business of said Portsmouth & Dover Railroad, and all proper interest, expenses, and incidental charges that may accrue on any loans necessary to the construction, completion, repairs, or the improvements of said Portsmouth & Dover Railroad, and incurred with consent of said Eastern Railroad; and that during all the term aforesaid, the said Eastern Railroad in New Hampshire will keep the said Portsmouth & Dover Railroad, and all the buildings, bridges, and other structures thereof, in like good order and repair in which they shall receive the same, or in which the same shall, at the cost of said Portsmouth & Dover Railroad, be put; and that they will pay semi-annually, directly to the stockholders of said Portsmouth & Dover Railroad, individually, the rent aforesaid; to wit, three dollars on each share of the capital stock that has been or may be created as aforesaid, and one half of the net earnings of the said Portsmouth & Dover Railroad, over and above said three dollars per share, to be determined as is above described, and at the expiration of said term of fifty years,

they will peaceably yield up and surrender to the said Portsmouth & Dover Railroad, their successors and assigns, all the said demised premises, with all the additions, enlargements, and permanent improvements thereof, which may be made during said term, in the same good condition in which the same shall be received of the said Portsmouth & Dover Railroad, or shall be put into as aforesaid.

It is mutually agreed that the said Portsmouth & Dover Railroad shall be constructed as aforesaid, under the direction of agents to be mutually agreed upon by the parties; that the said Eastern Railroad, their successors and assigns, shall have the exclusive possession, control, and management of said Portsmouth & Dover Railroad, and the appurtenances, during the term aforesaid, subject to the laws of the State and to the limitations above expressed, and the irrevocable right and authority to maintain and defend all suits at law or in equity, and all other proper legal proceedings in the name of said Portsmouth & Dover Railroad, but to their own use and at their own expense, and to use the name of said Portsmouth & Dover Railroad in all cases needful for the purpose of obtaining, holding, and quietly enjoying the demised premises, and for any purpose consistent with the true meaning and intent of this indenture.

In witness whereof, the said Portsmouth & Dover Railroad have caused this instrument, and one other of like tenor, to be sealed with its common seal and signed by its president, directors, and treasurer, and the said Eastern Railroad in New Hampshire has caused the same instrument to be sealed with its common seal and signed by its president and treasurer, the day and year before written.

[Seal.]

FRANK JONES,

President of Portsmouth & Dover Railroad.

DANIEL MARCY,

ALBERT R. HATCH,

JOHN H. BAILEY,

ANDREW H. YOUNG,

OLIVER WYATT,

AMOS D. PURINTON,

Directors of Portsmouth & Dover Railroad.

GEORGE L. TREADWELL, *Treasurer.*

In presence of

J. S. H. FRINK.

JOHN A. VARNEY.

EASTERN RAILROAD IN NEW HAMPSHIRE,

[Seal.]

By B. T. REED, *President.*

Countersigned by JOHN A. PARKER, *Treasurer.*

ARTICLES OF AGREEMENT

BETWEEN THE PORTSMOUTH, GREAT FALLS & CONWAY RAILROAD COMPANY AND THE EASTERN RAILROAD COMPANY,

Of two parts, made this twelfth day of September, in the year of our Lord one thousand eight hundred and seventy, by and between the Portsmouth, Great Falls & Conway Railroad, a corporation duly established by authority

of the State of New Hampshire, of the first part, and the Eastern Railroad in New Hampshire, a corporation duly established by authority of the State of New Hampshire, of the second part.

Whereas, the said Portsmouth, Great Falls & Conway Railroad was duly incorporated by act of the Legislature of New Hampshire, approved on the third day of June, eighteen hundred and sixty-five, and under and by virtue thereof, and of the act of said Legislature, approved July third, eighteen hundred and sixty-six, and of other acts in addition thereto, has become the owner of and has in use, a railroad from Brock's Crossing, so called, on the Portland, Saco & Portsmouth Railroad, to Union Village, in the town of Wakefield, in Carroll county, with authority to construct and maintain a railroad from the present terminus of said railroad in Union Village, to some point in the town of Conway, with other powers and privileges in said acts, and the several acts in addition thereto specified and granted; and, whereas, by the fourth section of said act, approved July third, eighteen hundred and sixty-six, it is provided and enacted as follows, viz.:

"SECTION 4. Said Portsmouth, Great Falls & Conway Railroad are hereby authorized and empowered to lease for any period of time, or sell, their said railroad and franchise and property to any railroad corporation in this State, upon such terms and conditions as may be agreed on and approved by the railroad commissioners and the Governor and the Council, the provisions of any other act to the contrary, notwithstanding."

Now, therefore, the said parties hereto have agreed, and do hereby grant, covenant, and agree, each to and with the other, in manner and form following: That is to say,

First. The said Portsmouth, Great Falls & Conway Railroad, for the consideration hereinafter mentioned, doth hereby grant, demise, and lease to said Eastern Railroad in New Hampshire, party hereto of the second part, the said Portsmouth, Great Falls & Conway Railroad, as now located, and as the same, or any part or parts thereof, may hereafter be located, and every part thereof, and all and singular branch roads, and other railroads of said Portsmouth, Great Falls & Conway Railroad that may be connected therewith, and all and singular side-tracks, turn-outs, turn-tables, and other conveniences and things that may be laid, made, or constructed in connection with, or for the accommodation of, said main road, or any such branch road, or roads; and the entire right to use the same by locomotives, cars, carriages, and engines, or otherwise, to and through the whole extent to which the same have been, or hereafter may be, located, built, or constructed. Also, all the real estate, depots, buildings, and structures whatever, that may be acquired or built for the use and accommodation of the same, and all rights, easements, privileges, and appurtenances thereof; and the right and authority to make and complete the same, and to construct and finish any and all buildings and other accommodations in, and upon, and about the premises which the said party hereto of the second part, its representatives or agents, may deem needful, at the cost and expense of the party hereto of the first part; and the right to demand and receive tolls, rents, and every legal proper compensation for the use of said demised premises, or any part thereof.

To have, hold, and enjoy the same demised and granted premises, rights, privileges, powers, and authority to the said Eastern Railroad in New Hampshire, party hereto of the second part, its successors and assigns, from and after the said twelfth day of September, A. D. eighteen hundred and seventy, for and during the full term of sixty-nine years thence ensuing, yielding and paying therefor, as the rent thereof, from time to time, on the same days when the said party hereto of the second part shall pay dividends to its own stockholders, a sum of money which shall bear the same proportion to the

whole cost and expenses incurred, prior to the time of paying said rent, in obtaining, making, and constructing said Portsmouth, Great Falls & Conway Railroad, and its appurtenances, which the amount of such dividends of said party hereto of the second part, to its stockholders, shall bear to the whole cost and expenses incurred and paid by said stockholders, prior to the same time, in obtaining, making, and constructing its railroad in said Commonwealth of New Hampshire, and the appurtenances thereof; and so the said party hereto of the first part shall receive the same percentage on the whole amount of expenditures in obtaining and construction of its said railroad, and the appurtenances thereof, as the party of the second part shall pay in such dividends on the whole amount of its expenditures paid by its stockholders in obtaining and constructing its own railroad, and the appurtenances thereof; and the amount of expenditures and expenses to be ascertained from time to time, as aforesaid, shall include the whole expenditures and expenses incurred and paid by said stockholders in obtaining, locating, building, and completing each of said railroads, and its branches, depots, and appurtenances.

Said Eastern Railroad in New Hampshire shall prepare from time to time a dividend sheet, containing a list of stockholders of said Portsmouth, Great Falls & Conway Railroad, from a list to be furnished by the Portsmouth, Great Falls & Conway Railroad, and shall pay to the treasurer of the Portsmouth, Great Falls & Conway Railroad, for the use of, and to be paid by him over to, each and every holder of stock in said Portsmouth, Great Falls & Conway Railroad, the same dividend per share that it pays to the holders of stock in the Eastern Railroad in New Hampshire, and at the same time, so that the stockholders in both corporations shall always, and under all circumstances, fare alike and equally, share for share; and such payments shall be in lieu of and in full for all rent, and claim for rent, which said Portsmouth, Great Falls & Conway Railroad, party hereto of the first part, can have upon said Eastern Railroad in New Hampshire, by virtue of this contract, as well when it does not as when it does make a dividend to its own stockholders.

Second. The said party hereto of the first part hereby covenants with said party hereto of the second part, its successors and assigns, that the said party hereto of the first part will, without unnecessary delay, at its own cost and expense, and to the satisfaction of a majority of the directors of said Eastern Railroad in New Hampshire, construct and complete a railroad the entire length of the route to that part of Conway called North Conway, as described in the acts incorporating the party hereto of the first part, or as much thereof as requested by said Eastern Railroad in New Hampshire, and will purchase, build, construct, and complete all such lateral tracks, turn-outs, switches, turn-tables, depots, buildings, and fixtures as the party hereto of the second part, or a majority of its directors, shall require; all which the said party hereto of the second part, its representatives and assigns, shall have, hold, and enjoy, as part of the demised premises during term aforesaid.

Third. And the said Eastern Railroad in New Hampshire, party hereto of the second part, for itself and its representatives, doth hereby covenant and agree with the said party hereto of the first part, its successors and assigns, that the said party hereto of the second part will, during the term aforesaid, pay unto the said party hereto of the first part, its successors and assigns, the said rent, herein before reserved, at the times and in the manner aforesaid; and at the end of said term shall and will peacefully yield up the said demised premises unto the party hereto of the first part, its successors or assigns, in as good condition as the same are now in, or may be put in by

said party hereto of the first part, reasonable use and wear thereof, and damage or destruction thereof by fire or other casualties, excepted.

Fourth. From and out of the gross amount of the tolls and income of the railroads owned by the said parties hereto, respectively, shall be deducted and paid, from time to time, all charges and expenses that may be incurred by said party hereto of the second part, in rebuilding, maintaining, and keeping in good condition said railroads, and the buildings, bridges, and other structures and property that may be held or used in connection therewith, and their appurtenances; also, all taxes which shall be assessed on the same, or on any part thereof, during said term; also, the rents of such real estate as may be hired by said party of the second part, in conducting the business of said roads, and the tolls, charges, and maintenance of any ferry or ferries; also, the cost and expense of renewing, replacing, and keeping in repair, any and all moving power, engines, and cars that may be used on the said railroads, respectively; also, the cost and expense of purchasing and procuring fuel; also, the salaries, wages, and compensation of all superintendents, engineers, agents, clerks, assistants, and servants who may be employed by the party of the second part, upon said railroads, or either of them, or any part thereof, or in any business connected therewith or relating thereto; and all just claims for damages that may be sustained by any person or persons traveling in the cars on either of said railroads, and for the loss, destruction, or damage of any property that may be carried in said cars, and all and singular costs, expenses, [and] damages which said party hereto of the second part may be liable for as common carriers; and generally all charges that may be incurred in the management of the business or concerns of the said railroads, or any part thereof, and all incidental charges and expenses, and the interest that may accrue on any past or future loans.

Fifth. The said party hereto of the second part shall have and exercise the whole and exclusive possession, control, management, and direction of the railroad and premises hereby demised; and the irrevocable right and authority to use the name of the party hereto of the first part in all suits and proceedings in law, and in equity; and in all cases in which it may be needful for the purpose of recovering rents, tolls, or income, or compensation for any damage that may be done to any of the said demised premises; or for the purpose of obtaining, holding, or quietly enjoying the property and rights hereby granted and demised; or for any purpose consistent with the true intent and meaning of this instrument.

Sixth. The said party hereto of the first part, for itself, its successors, and representatives, covenants and agrees with the said party hereto of the second part, its successors and assigns, that the said party hereto of the second part, its successors and assigns, performing and observing the covenants and agreements herein contained, on its and their part to be kept and performed, shall and may peaceably hold and enjoy the said demised premises during the term aforesaid, without hindrance or interruption by said party hereto of the first part, or any person or persons claiming under it.

Seventh. It is further stipulated and agreed, for the consideration aforesaid, and the further consideration of one dollar paid by said Eastern Railroad in New Hampshire to the Portsmouth, Great Falls & Conway Railroad, the receipt whereof is hereby acknowledged, that if said Eastern Railroad in New Hampshire shall at any time hereafter elect to become the purchasers and absolute owners, instead of lessees, of said railroad property and franchise, and shall give the said Portsmouth, Great Falls & Conway Railroad six months' notice, in writing, of their said election, then upon the expiration of said six months, and the payment and delivery to the treasurer of said

Portsmouth, Great Falls & Conway Railroad, for the use, and to be by him paid over to each and every stockholder in said Portsmouth, Great Falls & Conway Railroad, certificates of shares of the capital stock of said Eastern Railroad in New Hampshire, equal in number and amount, share for share, to the shares so held by the stockholders in said Portsmouth, Great Falls & Conway Railroad; all the said Railroad property and franchise shall thereupon and thereby vest in and become the absolute property and franchise of said Eastern Railroad in New Hampshire, and the said Portsmouth, Great Falls & Conway Railroad hereby covenants and agrees to give such further assurances and conveyances as may be necessary, if any, to perfect and complete said transfer of title and ownership; *provided, however*, that in case any stockholder of said Portsmouth, Great Falls & Conway Railroad shall give notice in writing to the treasurer thereof, not less than thirty days prior to the expiration of said six months, of his or their preference to take pay in cash, at par, for his or their shares, instead of stock in said Eastern Railroad in New Hampshire as aforesaid; then said Eastern Railroad in New Hampshire shall, as to such shares and shareholders, pay to said treasurer of the Portsmouth, Great Falls & Conway Railroad, for the use, and to be paid over to such stockholders, the said par value of their said shares of stock in cash.

In witness whereof, the said Portsmouth, Great Falls & Conway Railroad hath caused this instrument, and one other of like tenor and date, to be sealed with its common seal, signed by George M. Browne, its president, and countersigned by John B. Parker, its treasurer.

And the said Eastern Railroad in New Hampshire hath caused the same instruments to be sealed with its common seal, to be signed by Benjamin T. Reed, its president, and countersigned by John B. Parker, its treasurer, the day and year before written.

PORTSMOUTH, GREAT FALLS & CONWAY RAILROAD.

[Seal.]

By GEORGE M. BROWNE, *President*.

EASTERN RAILROAD IN NEW HAMPSHIRE,

[Seal.]

By B. T. REED, *President*.

Witnesses:

W. H. Y. HACKETT.
WM. H. SHACKFORD.
H. L. WILLIAMS.
ICHABOD GOODWIN.

[Countersigned]

JOHN B. PARKER,
Treasurer Portsmouth, Great Falls & Conway Railroad.

[Countersigned]

JOHN B. PARKER,
Treasurer Eastern Railroad in New Hampshire.

STATE OF NEW HAMPSHIRE.

ROCKINGHAM, ss. Sept. 12, 1870. Personally appeared George M. Browne, president of the Portsmouth, Great Falls & Conway Railroad, and Benjamin T. Reed, president of the Eastern Railroad in New Hampshire, and severally acknowledged the foregoing instrument to be their free act and deed, and the free act and deed of the corporation for which they respectively executed the same.

In witness whereof, I have hereunto set my hand and affixed my official seal, on this twelfth day of September, Anno Domini 1870.

[Seal.]

WILLIAM H. HACKETT,
Notary Public and Commissioner for Maine.

September 23, 1870.

The foregoing contract and lease is sanctioned and approved by us.

SAMUEL D. QUARLES,

CHARLES P. GAGE,

DAUPHIN W. BUCKMINSTER,

Railroad Commissioners, New Hampshire.

The foregoing contract and lease is approved by the Governor and Council of New Hampshire.

ONSLOW STEARNS, *Governor.*

MOSES HUMPHREY.

EZRA GOULD.

DANIEL BARNARD.

SAMUEL W. HALL.

NATHAN H. WEEKS.

September 23, 1870.

Whereas, the Eastern Railroad in New Hampshire, in accordance with the request of the Eastern Railroad Company, have taken a lease of, and entered into the foregoing contract and covenants with the Portsmouth, Great Falls & Conway Railroad; and, whereas, said lease, contracts, and covenants have been seen, examined, considered, and approved by said Eastern Railroad Company, to which said Eastern Railroad in New Hampshire, itself, has been leased under the authority of an act of the Legislature of New Hampshire.

Now, therefore, know all men by these presents, that the said Eastern Railroad Company does hereby ratify, confirm, and adopt the above recited doings of the said Eastern Railroad in New Hampshire, and in consideration aforesaid, and of one dollar paid by Eastern Railroad in New Hampshire, the receipt of which is hereby acknowledged, does hereby covenant and agree to protect and indemnify said Eastern Railroad in New Hampshire from all costs or damages for or on account of said lease, contract, and covenants, it being understood and agreed the costs of said lease, contract, and covenants, and all income arising therefrom, shall be apportioned like any other expense or income, and in accordance with the provisions of the indentures between said Eastern Railroad Company and said Eastern Railroad in New Hampshire.

In witness whereof, the said Eastern Railroad Company caused this instrument to be sealed with their corporate seal, and signed by their president, this fifteenth day of September, eighteen hundred and seventy.

EASTERN RAILROAD COMPANY,

By GEORGE M. BROWNE, *President.*

[Seal.]

Witnesses:

HENRY L. WILLIAMS.

FRANKLIN HAVEN.

[Countersigned]

JOHN B. PARKER, *Treasurer.*

LEASE.

EASTERN RAILROAD IN NEW HAMPSHIRE TO EASTERN RAILROAD COMPANY.

This indenture, made in triplicate this first day of October, A. D. 1878, by and between the Eastern Railroad in New Hampshire, a corporation duly established under the laws of the State of New Hampshire, of the first part, and the Eastern Railroad Company, a corporation duly established under the laws of the Commonwealth of Massachusetts, of the second part, witnesseth:

That, whereas, the railroad of the party of the first part, with all and singular its real and personal estate of every description, has heretofore and up to the date of these presents been leased to, and used, possessed, managed, and operated by, the party of the second part; and,

Whereas, the said party of the first part, by act of the Legislature of New Hampshire, approved July 11, A. D. 1878, was authorized to make new contracts for the use and operation of its railroad upon such terms and for such time as may be deemed expedient, such new contract to be valid when approved by a majority of its board of directors, and of its stockholders present at any legal meeting called for that purpose; and,

Whereas, the party of the second part, by an act of the Legislature of Massachusetts, approved March 13, A. D. 1878, was authorized to make new leases or running contracts with railroads out of the State theretofore leased or operated by it, such new lease or contract not to be valid unless agreed to by its directors, and approved by a majority in interest of its stockholders at a meeting called for that purpose; and by the trustees appointed under chapter two hundred and thirty-six of the acts of said Legislature for the year eighteen hundred and seventy-six; and,

Whereas, this lease and the terms of this indenture have been approved by a majority of the directors of the party of the first part, at a meeting held on the first day of October, A. D. 1878, and by a majority of its stockholders present at a legal meeting called for the purpose, and held at Portsmouth, in the State of New Hampshire, on the seventeenth day of September, A. D. 1878, and by adjournment to the same place, on the first day of October, A. D. 1878, and have been agreed to by the directors of the party of the second part at a meeting held on the twenty-eighth day of September, A. D. 1878, and have been approved by a majority in interest of its stockholders, at a meeting called for that purpose, and held at Boston, in the Commonwealth of Massachusetts, on the thirtieth day of September, A. D. 1878, and have also been approved by the trustees appointed under the act hereinbefore named, as appears by the indorsements hereon; and,

Whereas, at the several meetings of stockholders above mentioned, it was voted by each corporation respectively that its president and treasurer, in its name and on its behalf, be authorized to sign, seal with the corporate seal, execute, and deliver an indenture in the terms and form of these presents;

Now, therefore, the said parties, each for itself, its successors, and assigns, and each in consideration of the grants, covenants, and engagements herein made by the other, have granted, covenanted, and agreed, and do hereby grant, covenant, and agree, each to and with the other, and its successors and assigns, in the manner following, to wit:

First. The said party of the first part doth hereby grant, demise, and lease unto the party of the second part, its successors and assigns, its railroad property of every description, including therein its railroad as now located, its lands, branches, side-tracks, road-beds, rails, superstructures, station-

houses, depot grounds, depots, viaducts, bridges, piers, shops, buildings, fixtures, and all rights, franchises, easements, privileges, and appurtenances thereto belonging, together with the right to demand and receive tolls, rent, and every other legal compensation, for the use of the demised premises.

To have and to hold the said demised premises to the said party of the second part, its successors and assigns, for and during the term of sixty years and two months from and after the first day of October, A. D. 1878; yielding and paying therefor, as the rent thereof, on said first day of October, A. D. 1878, the sum of twenty-two thousand five hundred dollars (\$22,500); on the first day of December, A. D. 1878, the sum of eleven thousand two hundred and fifty dollars (\$11,250); and thereafter, on the first days of June and December in each succeeding year during the full term of this lease, the sum of eleven thousand two hundred and fifty dollars (\$11,250).

Second. The party of the second part shall use and operate the railroad and property herein demised in accordance with the charter of the party of the first part and the laws of the State of New Hampshire; shall furnish all engines, cars, and necessary rolling stock and equipments; shall pay all taxes upon the franchise, property, stock, business, or income of the party of the first part, whether imposed under the laws of the State of New Hampshire or of the United States, and whether assessed according to existing methods or however otherwise, so that the rent hereinbefore reserved to the party of the first part shall be paid to it free and clear of all deductions; shall pay all cost of insurance on the demised premises, and all damages to person or property occasioned by the use and operation thereof; shall at its own charge keep the demised premises in such condition and repair as the same are in at the date of these presents, and generally shall pay all costs, expenses, and damages incurred in the use and operation of the demised premises; shall pay to the treasurer of the party of the first part the rent hereinbefore stipulated upon the days hereinbefore expressed; and at the expiration of said term of sixty years and two months shall surrender the demised premises to the party of the first part, in substantially the same state and condition of repair as the same may be in at the date of these presents, and with all additions, enlargements, or improvements thereon, for which no claim or charge is to be made by the party of the second part.

Third. The party of the second part shall indemnify and hold harmless the party of the first part against all claims and liabilities arising out of existing contracts of lease with the Portsmouth, Great Falls & Conway Railroad, the Portsmouth & Dover Railroad, and the Wolfeborough Railroad, and each of them, and, as rent additional to the rent hereinbefore specified, will pay to the party of the first part all sums of money and all expenses it may be compelled to pay or may be put to on account of said contracts, or any of them.

Fourth. The party of the second part shall keep accounts of the earnings and expenses of the party of the first part in such manner and form as shall be necessary to enable the party of the first part to make such reports to the State of New Hampshire as may be required by law, and shall, on demand, furnish the party of the first part such abstracts thereof as may be desired.

Fifth. The party of the first part (the party of the second part performing and observing the covenants and agreements herein contained on its part to be performed and observed) hereby warrants to the party of the second part the quiet and peaceable enjoyment and the full and exclusive control and possession of the demised premises during the term of this lease, and grants to said party of the second part the irrevocable right and authority, at its own cost and expense, to use the name of the party of the first part in all legal proceedings in all cases needful for obtaining, holding, and enjoying the premises hereby demised, and for all purposes consistent with the true

scope and intent of this indenture; *provided, always*, and these presents are upon this condition, that in case the rent hereinbefore reserved, or any installment thereof, shall remain due and unpaid for the period of three months after the same shall become due and payable under the terms of this indenture, then the party of the first part shall be at liberty to enter upon the demised premises and to expel the party of the second part, and to determine the estate hereby created, and upon such entry shall become seized and possessed of the demised premises in its original right, and as if this indenture had never been made.

Sixth. The directors for the time being, and the treasurer and clerk of the party of the first part, shall have a free passage at all times on and over the railroads of the party of the second part, and on the day of every meeting of stockholders of the party of the first part, the said stockholders shall have a free passage on and over said railroads to the place of meeting, and return, provided that said passage shall be at the risk of the person so transported.

In witness whereof, the said parties have caused their respective corporate seals to be hereto affixed, and these presents to be signed and delivered, each by its president and treasurer, thereto duly authorized, the day and year before written.

EASTERN RAILROAD IN NEW HAMPSHIRE,

By MOODY CURRIER, *President.* [Seal.]
THOS. J. LEE, *Treasurer.*

In presence of

GEORGE B. CHANDLER.
ALFRED B. HILL.

EASTERN RAILROAD COMPANY,

By A. P. ROCKWELL, *President.* [Seal.]
N. G. CHAPIN, *Treasurer.*

JAS. B. BELL.
RICHARD OLNEY.

AGREEMENT

TO CONSOLIDATE THE WORCESTER & NASHUA RAILROAD COMPANY AND THE NASHUA & ROCHESTER RAILROAD.

Whereas, the Worcester & Nashua Railroad Company, a corporation incorporated by the Legislatures of the States of Massachusetts and New Hampshire, and the Nashua & Rochester Railroad, a corporation existing under and by virtue of the laws of said State of New Hampshire, were authorized by chapter 129 of the acts of the Commonwealth of Massachusetts, passed April 10th, in the year 1883, and by an act of the Legislature of the State of New Hampshire approved September seventh, A. D. 1883, to unite and form one corporation, upon condition that the holders of shares of the capital stock in said corporations may, upon surrender of such shares, receive in lieu thereof certificates for an equal number of shares in the corporation to be established under said acts, and upon such other equal terms for each such share as may be mutually agreed upon, subject to the provisions of said acts, by the written assent, or by vote of a majority in interest of the stockholders of each of said corporations at meetings duly called for that purpose; and, whereas, in pursuance of the provisions of said acts, we, the undersigned, stockholders in the Worcester & Nashua Railroad Company, and in the

Nashua & Rochester Railroad, respectively, and being the owners of the number of shares of the capital stock of said corporations set against our respective names, have mutually agreed, and do hereby mutually agree, that on and after the first day of December, 1883, said corporations shall be united and consolidated, and shall thereafter form one corporation, to be known as and called the Worcester, Nashua & Rochester Railroad Company; and that on and after said first day of December, A. D. 1883, each holder of stock in either of said corporations shall be and become a stockholder of the same number of shares in the consolidated company; and may at any time surrender his certificate of stock, and the same shall be canceled, and he shall receive in lieu thereof a certificate of the same number of shares in said consolidated company, which shares shall be in every respect of equal value and entitled to the same dividends; and we do further agree, for the purpose of equalizing said shares, that a dividend computed at the rate of three per cent per annum shall be paid to the holders of stock in either of said corporations, from the dates of the last dividends declared to the time said union takes place.

Now, therefore, we, the undersigned, stockholders in the Worcester & Nashua Railroad Company and the Nashua & Rochester Railroad, or in either of said corporations, being the owners of the number of shares of the capital stock in said corporations set against our names respectively, do hereby make and execute our written assent to the union and consolidation of the said Worcester & Nashua Railroad Company and the Nashua & Rochester Railroad, upon the terms and conditions above named, so as to form one corporation to be called the Worcester, Nashua & Rochester Railroad Company, and we do hereby assent to and adopt the provisions of the aforementioned acts authorizing such union.

DECLARATION OF CONSOLIDATION.

At a legal meeting of the stockholders of the Worcester, Nashua & Rochester Railroad Company, held in the city of Worcester, on the first day of December, 1883, the following declaration of the consolidation of the Worcester & Nashua Railroad Company and the Nashua & Rochester Railroad was read to the stockholders assembled:

Whereas, it is provided in an act of the Legislature of the Commonwealth of Massachusetts, passed April 10, 1883, and in an act of the Legislature of the State of New Hampshire, approved September 7, 1883, that the Worcester & Nashua Railroad Company and the Nashua & Rochester Railroad may unite upon condition that the holders of shares in the capital stock in the said corporations may upon surrender of said shares, receive in lieu thereof certificates for an equal number of shares in the corporation to be established under said acts, and upon such other equal terms for each such share as might be mutually agreed upon, subject to the provisions of said acts, by the written assent of a majority in interest of the stockholders in each of said corporations, such written assent to be effectual to unite said corporations within the intent and meaning of said acts.

And, whereas, of the 17,898 shares of stock issued by the Worcester & Nashua Railroad Company the owners of 13,329 shares and of the 13,100 shares issued by the Nashua & Rochester Railroad, the owners of 12,007 shares have assented in writing to said union, and being a majority in interest of the holders of stock in each of said corporations, they are now declared one corporation to be called the Worcester, Nashua & Rochester Railroad Company.

Dated at Worcester, December 1, 1883.

[Signed]

C. S. TURNER,

President of the Worcester & Nashua R. R. Co.

F. H. KINNICUT,

President of the Nashua & Rochester Railroad.

A true copy of the record.

Attest:

T. W. HAMMOND, *Clerk.*

LEASE.

THE EASTERN RAILROAD COMPANY TO THE BOSTON & MAINE RAILROAD.

This indenture, made in duplicate this second day of December, A. D. 1884, by and between the Eastern Railroad Company, a corporation existing under and by virtue of the laws of the Commonwealth of Massachusetts, party of the first part, and hereinafter denominated the lessor, and the Boston & Maine Railroad, a corporation existing under and by virtue of the laws of said Commonwealth, and under and by virtue of the laws of the States of Maine and New Hampshire, party of the second part, and hereinafter denominated the lessee, witnesseth:

That the said parties, each for itself, its successors and assigns, and each in consideration of the grants, covenants, and engagements herein made by the other, have granted, covenanted, and agreed, and do hereby grant, covenant, and agree, each to and with the other, and its successors and assigns, as follows, to wit:

1. The lessor doth grant, demise, and lease unto the lessee, its successors and assigns, its railroad and railroad property of every description, including therein its railroad, lands, and wharves within or without said Commonwealth, branches, tracks, side-tracks, road-beds, superstructure, station-houses, depot grounds, depots, viaducts, bridges, piers, shops, buildings, fixtures, engines, cars, rolling stock, machinery, tools, furniture, telegraph apparatus, equipment, material, and supplies, bills and accounts receivable, money and cash on hand; and all rights, franchises, easements, privileges, and appurtenances thereto belonging, together with the right to demand and receive all tolls, rent, revenue, income, and profits of the demised premises; including also therein all the right, title, and interest of the lessor in and to any and all railroads operated by it under lease or otherwise, and in and to any stock of other railroads owned by it, all dividends thereon, and the right of voting on the same, and in and to any contracts with other railroads, corporations, or individuals, and all advantages and benefits to be derived therefrom; hereby assigning and transferring unto the lessee all its railroad, railroad property, franchises, and assets of every description, subject, however, to a mortgage made June 22, A. D. 1876, to William C. Rogers, William B. Bacon, and Willard P. Phillips, trustees, and duly recorded, and subject to all other legal obligations and incumbrances.

To have and to hold all and singular the demised premises to the lessee, its successors and assigns, for and during the term of fifty-four years from and after the first day of October, A. D. 1883, yielding and paying rent as provided in the article next following, and keeping and performing the terms, conditions, and stipulations hereinafter contained on the part of said lessee to be kept and performed.

2. The railroads and properties hereby demised and those of the lessee shall be used, managed, and operated by the lessee in a proper, ordinary, and judicious manner, according to the best discretion and judgment of its managers, so as to secure the largest amount of earnings from each which can be realized therefrom, with due regard to the service to be rendered to the public and to the preservation of said roads and properties in good order and condition for rendering such service efficiently and economically; and the combined annual gross earnings from all sources whatsoever of the railroads and properties of the lessor and lessee shall be paid over and applied by the lessee in each and every year during the term of this lease, to the amounts, at the times, and in the order of priority following, to wit:

First. The lessee shall pay the operating expenses of both the lessor and lessee. Such operating expenses shall include, as part thereof, the cost of ordinary repairs and renewals; all expenditures arising out of any contract, obligation, business, negligence, or misfeasance, or however otherwise arising, in any way connected with the use and operation of the railroads and properties of the parties hereto, and including damages to persons and properties; insurance; all taxes of every description, federal, state, or municipal, upon property, business, franchises, or capital stock; interest upon the improvement bonds hereinafter mentioned, and payments to the sinking fund for such bonds; any other expenditures hereinafter declared to be operating expenses; and the organization expenses of the lessor, for which, in addition to sufficient office accommodations to be furnished by the lessee, there shall be paid to the lessor at the end of each successive three months during the term of this lease the sum of twenty-five hundred dollars (\$2,500), which gross annual payment shall cover and include the three thousand dollars (3,000) to be paid to the trustees under its mortgage.

Second. The lessee shall pay, as the same become due, the rentals of all railroads leased to either the lessor or the lessee, and the interest on the permanent debt of both the lessor and lessee, a schedule whereof is hereto annexed, and to that end shall pay to the lessor such sums of money, at such times, as shall enable it to meet punctually the interest on its debt as the same matures.

Third. After making the payments specified in clauses first and second, and from the surplus remaining, the lessee shall retain to its own use the sum of six hundred and thirty thousand dollars (\$630,000).

Fourth. After making the payments and applications specified in clauses first, second, and third, all surplus then remaining, up to the sum of one hundred thousand dollars (\$100,000), shall be paid to the lessor for its own use.

Fifth. After making the payments and applications specified in clauses first, second, third, and fourth, and from the surplus then remaining, the lessee shall retain to its own use the sum of seventy thousand dollars (\$70,000).

Sixth. After making the payments and applications specified in clauses first, second, third, fourth, and fifth, all surplus then remaining, up to the sum of three hundred and thirty-six thousand dollars (\$336,000), shall be paid to the lessor for its own use.

Seventh. After making the payments and applications specified in clauses first, second, third, fourth, fifth, and sixth, any surplus then remaining shall be retained by the lessee, but shall be applied to permanent improvements upon the respective properties of the lessor and lessee *pro rata* according to mileage, including branches and leased roads, so far as such improvements may be required, and the remainder, if any, may be applied to the purchase at the market price of any of the improvement bonds hereinafter provided for.

3. The lessee shall from time to time make such permanent improvements in and upon the demised premises as the requirements of business may make necessary and proper. To meet the cost of such permanent improvements, and of the like improvements upon its own property, the lessee shall issue its bonds, to be called "Improvement Bonds." Such bonds shall run for the longest period allowed by law, and shall be secured by a sinking fund, the annual payments to which shall not exceed (except with the written consent of the lessor) one and one half ($1\frac{1}{2}$) per cent of the face of the bonds, and which said payments, as well as the annual interest on the said bonds, shall be deemed to be operating expenses, and be paid out of gross earnings as part thereof.

"Improvement Bonds" not paid at maturity by the sinking fund provided therefor shall be paid from the proceeds of other "Improvement Bonds" to be issued by the lessee of the like character, and similarly secured by a sinking fund.

Accounts shall be kept by the lessee, and annual statements thereof made between the lessor and lessee, showing the amounts expended for permanent improvements upon the property of each, respectively; and in case of any difference between the parties as to such accounts the same shall be adjusted, when it shall arise, by arbitration in the manner hereinafter provided, and the accounts shall be restated according to the decision of the arbitrators; and at the expiration or earlier termination of this lease, the improvement bonds then outstanding, including those purchased as above provided, shall be assumed and paid by the parties proportionately to the improvements made on the property of each, respectively, during the term of this lease.

Permanent improvements shall, for the purposes of this lease, be as follows, to wit:

First. Any increase in track mileage.

Second. Any increase in the number of any class of rolling stock over the number in existence and inventoried at the inception of this lease.

Third. Buildings or other structures in the nature of improvements to real estate which do not replace but are in addition to buildings and structures in existence at the inception of this lease; it being understood, however, that in the reconstruction of buildings and structures (including bridges) the excess in cost of the new structures over the cost of restoring the old structures to as good a condition as when new, shall be treated as an improvement expense.

Fourth. The reconstruction of buildings and structures and the reorganization of yards and terminal facilities for freight and passengers at Boston and Portland.

Fifth. Such other matters and things in the nature of new construction as shall be agreed to be such by the parties hereto, or shall be decided to be such by the railroad commissioners of Massachusetts, or a majority of them, upon the application of either party.

Car trusts and a loan for the improvement of the East Boston wharf property having already created by the lessor, the lessee shall pay the annual interest charges arising therefrom as operating expenses, and the principal, or any installments thereof, from the proceeds of "Improvement Bonds."

4. The lessee shall assume all traffic balances due from the lessor to other railroads or transportation companies; shall assume all contracts of the lessor for equipment, supplies, or material, and all other contracts of the lessor (its contracts with the holders of its permanent indebtedness as scheduled excepted) with individuals or corporations, express or implied; shall assume and defend all suits against the lessor arising out of or in any way connected with the use and operation of the demised premises; and shall make all payments required on account thereof from gross earnings as a part of operating expenses.

5. The lessee shall pay the interest upon any portion of the permanent indebtedness of the lessor or lessee that shall be renewed or extended in like manner as upon the same indebtedness before renewal or extension. If any portion of such permanent indebtedness of either the lessor or lessee shall be paid, an amount equal to the interest theretofore paid thereon shall be treated as a charge under section second of article two of this lease, and be retained by the lessee or paid to the lessor accordingly. And if, at the maturity of the existing mortgage indebtedness of the lessor, the lessor shall

deem it desirable to make a new mortgage of its property to secure such portion of its permanent indebtedness as shall not then be paid by its sinking fund, or otherwise, said lessee shall become a party to such mortgage so far as to agree, and for the purpose of agreeing, that said new mortgage shall operate and take effect upon the property as a lien and claim superior and prior to any lien or claim under this lease; provided that said new mortgage indebtedness shall in no case be greater than that secured by the mortgage now existing.

6. Leases and contracts of the lessor for the operation of other railroads, terminating during the term of this lease, shall be renewed by the lessor upon the most favorable terms practicable, and, being so renewed, shall be subject to all the provisions of this lease as effectually as if now existing and herein included, and upon the expiration or earlier termination of this lease, shall be reassigned to and enure to the benefit of the lessor.

7. The lessee shall have the right of voting on all stock owned by the lessor in other railroads or corporations, which stock shall not be sold or otherwise disposed of, except with the assent of the lessee, and the dividends on which shall be treated as part of the gross earnings under this lease; *provided, however*, that nothing herein shall require the lessor to pay to the lessee any dividend on its existing stock in the Portsmouth, Great Falls & Conway Railroad, or in the Wolfeborough Railroad.

8. The existing traffic contract, dated December 28, 1874, between the lessee and the Maine Central Railroad Company, shall not be abrogated or changed except with the assent of the directors of the lessor, the directors of the lessee, the directors of said Maine Central Railroad Company, and of three fourths of the stock of said Maine Central Railroad Company, given at a meeting of stockholders specially called for the purpose,

9. Should it be found for the interest of either party hereto to construct, lease, or purchase lines of or interests in railroads not embraced in its existing system, such construction, lease, or purchase may be authorized by the boards of directors of both the parties, subject to the approval of the stockholders of both corporations.

10. The lessee shall use and operate the railroads and properties herein demised, in accordance with the charter of the lessor and the laws of the Commonwealth of Massachusetts and of the States of Maine and New Hampshire, so far as the same are respectively applicable; shall furnish all cars, engines, rolling stock, and equipment of every description required, in addition to the like property hereby demised, for the due operation of the railroads operated under and by virtue of this lease; shall observe and perform all the provisions of contracts of the lessor with railroads leased or operated by it; shall keep the demised premises reasonably insured, and shall apply the proceeds of any insurance to restoring and replacing the property destroyed, or to making permanent improvements, not in the nature of ordinary repairs, upon the demised premises; shall apply the proceeds of rolling stock, equipment, and other personal property herein demised, which it may deem it advisable to sell, and which it is hereby authorized to sell at its discretion, so as to substitute therefor like property of equal value; shall replace buildings or structures on the demised premises taken down or removed, and which the lessee is hereby authorized to take down or remove at its discretion, with other buildings, structures, or permanent improvements upon the demised premises, of equal value; shall furnish the directors of the lessor with free annual passes over the railroads operated by the lessee under this lease; shall permit the demised premises to be inspected annually by some competent person appointed by the lessor, who shall report to the lessor the condition of said premises, and shall for the purpose of such inspection be fur-

nished with free transportation over the railroads operated by the lessee under this lease, and shall receive a reasonable compensation for his services to be paid as part of operating expenses; shall at all times keep full and accurate books of account, but not separate books of account, of the business done by it over its own road and over the roads operated by it by virtue of this lease, and of the profits and income derived from its own property and from the property herein demised, and separate accounts of all permanent improvements made under section three, which books shall be at all times accessible to the directors of the lessor or to any accountant appointed by them; shall make all returns required by law, and shall furnish the lessor with such abstracts of its accounts as shall enable it to make all returns required of the lessor; shall not assign this lease, nor underlet the whole or any part of the demised premises, except such portions thereof as may not be required for railroad uses, without the written assent of the lessor first had and obtained; shall keep the demised premises in the same condition of repair, renewal, and improvement as it keeps its own property of the like character, and shall cause all rolling stock substituted for that herein demised and added thereto, to be distinguished by appropriate names, numbers, or letters; and at the end of the term of this lease, or at any earlier termination thereof from any cause whatever, shall surrender the demised real and personal estate (to be ascertained and determined according to the inventory hereinafter provided for) in the like good order and condition in which they are at the inception of this lease or may be put during the term, with all improvements thereon or additions thereto, the amount of material and supplies to be surrendered or accounted for to the lessor to be equivalent in value to the amount on hand at the inception of the lease, as shown by said inventory.

To prevent uncertainty as to the property herein demised and to be accounted for upon the termination of this lease, there shall be made, as of the day when this lease takes effect, a full, complete, and particular inventory, description, and appraisal of all the estate and property, real and personal, belonging to the lessor and coming into the possession of the lessee by virtue of this lease. Such inventory, description, and appraisal shall be made by two competent persons, one selected by each party; in case of their disagreement, they shall refer the matter in difference to some third person, whose decision shall be final. Such inventory, description, and appraisal shall be made in duplicate, and an original furnished to each party, and shall be evidence of the nature, value, and condition of the property demised at the inception of this lease in all cases in which any question of such nature, condition, or value may arise.

11. The lessor shall maintain its existence and organization as a corporation, and to that end shall comply with all the requisites and forms of law; shall do all acts and things and execute all legal instruments necessary and proper to put and secure the lessee in the full enjoyment of all the property, rights, franchises, and interests herein demised, and to carry into effect the true intent and meaning of this lease; and shall permit the lessee to use the name of the lessor (and hereby grants the use of such name irrevocably) in all legal proceedings and in all cases needful for obtaining, holding, and enjoying the premises hereby demised, and for all purposes consistent with the true scope and intent of this lease.

12. This lease is upon the condition that, if the lessee shall at any time fail to make to the lessor, as part of the rent herein reserved, the payments herein stipulated to be made to it to enable it to pay the interest on its permanent indebtedness, then and in such case the lessor may at once enter upon the demised premises, and upon any part thereof as for the whole, and

expel the lessee and determine the estate hereby granted, and shall thereupon become seized and possessed of the demised premises and of every part thereof in its original right, and as if this lease had never been made; and upon the further condition, that if the lessee shall fail to perform any other of the covenants and agreements in this lease contained, and such failure shall continue for six months after written notice of such failure from the directors of the lessor, the lessor shall have the like right to enter and expel the lessee and re-vest in itself its former estate in the demised premises and every part thereof; *provided, however*, that such entry by the lessor for breach of condition shall in no wise prejudice or impair any remedies to which it might otherwise be entitled for arrears of rent or preceding breach of covenants.

13. In case of any disagreement between the parties hereto as to the true intent and meaning of this lease or any part thereof, or as to anything done under and by virtue of it or growing out of it, the matter in controversy shall be referred by written submission to the arbitration of the chairman of the railroad commissioners of Massachusetts, the president of the Boston & Albany Railroad Company, and the president of the Old Colony Railroad Company for the time being. The arbitrators shall hear the parties, after due notice to each of them, and if either party fail to attend after such notice, may proceed *ex parte*. The award in writing of said arbitrators, or a majority of them, being duly notified to the parties, shall be final and conclusive upon them.

In testimony whereof, the said parties, by the respective presidents and treasurers thereunto duly authorized, have caused their corporate seals to be hereunto affixed, and these presents to be executed, the day and year before written.

BOSTON & MAINE RAILROAD,

By GEORGE C. LORD, *President*.

AMOS BLANCHARD, *Treasurer*. [Seal.]

EASTERN RAILROAD COMPANY,

By ARTHUR SEWALL, *President*.

N. G. CHAPIN, *Treasurer*. [Seal.]

LEASE.

WORCESTER, NASHUA & ROCHESTER RAILROAD COMPANY TO BOSTON & MAINE RAILROAD.

This indenture, made in duplicate, this thirtieth day of October, A. D. 1885, by and between the Worcester, Nashua & Rochester Railroad Company, a corporation existing under and by virtue of the laws of the Commonwealth of Massachusetts, and under and by virtue of the laws of the State of New Hampshire, party of the first part and hereinafter denominated the lessor, and the Boston & Maine Railroad, a corporation existing under and by virtue of the laws of said Commonwealth, and under and by virtue of the laws of the States of Maine and New Hampshire, party of the second part and hereinafter denominated the lessee, witnesseth:

That the said parties, each for itself, its successors, and assigns, and each in consideration of the grants, covenants, and engagements herein made by the other, have granted, covenanted, and agreed, and do hereby grant, covenant, and agree, each to and with the other, its successors and assigns, as follows, to wit:

I.

The lessor doth grant, demise, and lease unto the lessee, its successors and assigns, its railroad and property of every description; including therein its railroad, lands, branches, tracks, side-tracks, road-beds, superstructure, station houses, depot grounds, depots, viaducts, bridges, piers, shops, buildings, fixtures, engines, cars, rolling stock, machinery, tools, furniture, telegraph apparatus, equipment, and all rights, franchises, easements, privileges, and appurtenances thereto belonging, together with the right to demand and receive all tolls, rent, revenue, income, and profits of the demised premises; including also therein all the right, title, and interest of the lessor in and to any contracts with other railroads, corporations, or individuals, and all advantages and benefits to be derived therefrom; excepting, however, from the property herein demised, all supplies and materials, rolling stock and equipment in process of construction, bills and accounts receivable, the lessor's shares of its own capital stock, and cash on hand at the time when this lease takes effect; hereby assigning and transferring unto the lessee all its railroad, railroad property, franchises, and assets of every description, except as aforesaid, subject, however, to a mortgage made by the Worcester & Nashua Railroad Company to Charles W. Smith and others, trustees, dated August first, A. D. 1879, and recorded with Worcester deeds, book 1057, page 251, and to a mortgage made by the Nashua & Rochester Railroad to Alexander H. Bullock and others, trustees, dated February twenty-fifth, A. D. 1874, and approved by the railroad commissioners of New Hampshire, March second, A. D. 1874, and subject to all other legal obligations and incumbrances.

To have and to hold all and singular the demised premises to the lessee, its successors and assigns, for and during the term of fifty years from and after the first day of January, A. D. 1886, yielding and paying rent as provided in the article next following, and keeping and performing the terms, conditions, and stipulations hereinafter contained on the part of said lessee to be kept and performed.

II.

The lessee shall pay to the lessor, as rent of the demised premises, the sum of two hundred and fifty thousand dollars in each year during the term of this lease, payable semi-annually in equal installments on the first days of July and January, and the first of said installments being payable on the first day of July, A. D. 1886, and shall also pay as part of the rent herein reserved all taxes assessed to the lessor during the term of this lease.

III.

The lessee shall purchase of the lessor, at valuations to be fixed by the appraisers provided for in Article VI. of this lease, all rolling stock and equipment in process of construction, and all materials and supplies on hand and not incorporated into its road or equipment, steel rails to be taken at the invoice cost to the lessor.

IV.

The lessee shall assume all contracts of the lessor for equipment, supplies, or material not delivered at the time this lease takes effect, and not then paid for, the same on delivery to become the property of the lessee; shall assume all other contracts of the lessor, with individuals or corporations, relating to the operation and management of the demised premises so far as said contracts are executory, and the benefits thereof are received by the lessee after this lease takes effect, but shall in no case be responsible for any indebted-

ness of the lessor of whatever character, or however or whenever arising, and shall assume and defend at its own cost all suits against the lessor arising out of or in any way connected with the current use and operation of the demised premises from and after the taking effect of this lease.

V.

The lessee shall use and operate the railroads and properties herein demised, in accordance with the charter of the lessor and the laws of the Commonwealth of Massachusetts and of the State of New Hampshire, so far as the same are respectively applicable, shall furnish all cars, engines, rolling stock, and equipment of every description required in addition to the like property hereby demised, for the due operation of the railroad operated under and by virtue of this lease; shall keep the demised premises reasonably insured, and shall apply the proceeds of any insurance to restoring and replacing the property destroyed, or to making permanent improvements, not in the nature of ordinary repairs upon the demised premises; shall apply the proceeds of rolling stock, equipment, and other personal property herein demised, which it may deem advisable to sell, and which it is hereby authorized to sell at its discretion, so as to substitute therefor like property of equal value; shall replace buildings or structures on the demised premises taken down or removed, and which the lessee is hereby authorized to take down or remove at its discretion, with other buildings, structures, or permanent improvements upon the demised premises, of equal value; shall furnish the directors of the lessor, not exceeding seven in number, with free annual passes over the railroads of the lessee as well as over the railroad operated by the lessee under this lease; shall permit the demised premises to be inspected annually by some competent person appointed by the lessor who shall report to the lessor the condition of said premises, and shall, for the purpose of such inspection, be furnished with free transportation over the railroad operated by the lessee under this lease; shall make all returns required by law, and shall furnish the lessor with such abstracts of its accounts as shall enable it to make all returns required by the lessor; shall not assign this lease, nor underlet the whole or any part of the demised premises, except such portions thereof as may not be required for railroad uses, without the written assent of the lessor first had and obtained; shall keep the demised premises in the same condition of repair as the said demised premises are in at the inception of this lease, and shall cause all rolling stock substituted for that herein demised to be distinguished by appropriate names, numbers, or letters; and at the end of the term of this lease, or at any earlier termination thereof from any cause whatever, shall surrender the demised real and personal estate (to be ascertained and determined according to the inventory hereinafter provided for) in the like good order and condition in which they are at the inception of this lease, or may be put during the term, with all improvements thereon or additions thereto; *provided*, that at the expiration of this lease the lessor shall pay to the lessee the value of such improvements and additions to be appraised, unless agreed upon by the parties, by the board of arbitrators provided for in the ninth article of this lease.

VI.

That the property herein demised and to be accounted for upon the termination of this lease may be accurately determined, there shall be made, as of the day when this lease takes effect, a full, complete, and particular inventory, description, and appraisal of all the estate and property, real and per-

sonal, belonging to the lessor, and coming into the possession of the lessee by virtue of this lease. Such inventory, description, and appraisal shall be made by two competent persons, one selected by each party; in case of their disagreement, they shall refer the matter in difference to some third person, whose decision shall be final. Such inventory, description, and appraisal shall be made in duplicate and an original furnished to each party, and shall be evidence of the nature, value, and condition of the property demised at the inception of this lease in all cases in which any question of such nature, condition, or value may arise.

VII.

The lessor shall maintain its existence and organization as a corporation, and to that end shall comply with all the requisites and forms of law; shall do all acts and things and execute all legal instruments necessary and proper to put and secure the lessee in the full enjoyment of all the property, rights, franchises, and interests herein demised, and to carry into effect the true intent and meaning of this lease; and shall permit the lessee to use the name of the lessor (and hereby grants the use of such name irrevocably) in all legal proceedings and in all cases needful for obtaining, holding, and enjoying the premises hereby demised, and for all purposes consistent with the true scope and intent of this lease.

VIII.

This lease is upon the condition that, if the lessee shall at any time fail to make to the lessor any of the payments herein stipulated to be made as and for rent of the demised premises, then and in such case the lessor may at once enter upon the demised premises, and upon any part thereof as for the whole, and expel the lessee and determine the estate hereby granted, and shall thereupon become seized and possessed of the demised premises and of every part thereof in its original right, and as if this lease had never been made; and upon the further condition, that if the lessee shall fail to perform any other of the covenants and agreements in this lease contained, and such failure shall continue for six months after written notice of such failure from the directors of the lessor, the lessor shall have the like right to enter and expel the lessee and revert in itself its former estate in the demised premises and every part thereof; *provided, however*, that such entry by the lessor for breach of condition shall in no wise prejudice or impair any remedies to which it might otherwise be entitled for arrears of rent or preceding breach of covenants.

IX.

In case of any disagreement between the parties hereto as to the true intent and meaning of this lease or any part thereof, or as to anything done under and by virtue of it or growing out of it, the matter in controversy shall be referred by written submission to the arbitration of the chairman of the railroad commissioners of Massachusetts, the president of the Boston & Albany Railroad Company, and the president of the Boston & Providence Railroad Company, for the time being. The arbitrators shall hear the parties, after due notice to each of them, and if either party fail to attend after such notice, may proceed *ex parte*. The award in writing of said arbitrators or a majority of them, being duly notified to the parties, shall be final and conclusive upon them.

In testimony whereof, the said parties, by their respective presidents and treasurers thereunto duly authorized, have caused their corporate seals to

be hereto affixed, and these presents to be executed, the day and year before written.

BOSTON & MAINE RAILROAD,

[Signed]

By GEORGE C. LORD, *President.* [Seal.]
AMOS BLANCHARD, *Treasurer.*

WORCESTER, NASHUA & ROCHESTER RAILROAD COMPANY,

[Signed]

By CHARLES A. SINCLAIR, *President.* [Seal.]
TIMOTHY W. HAMMOND, *Treasurer.*

 CONTRACT.

ST. JOHNSBURY & LAKE CHAMPLAIN RAILROAD COMPANY, BOSTON,
CONCORD & MONTREAL RAILROAD COMPANY, AND BOSTON &
LOWELL RAILROAD COMPANY.

This memorandum of agreement, made this first day of April, A. D. 1885, by and between the St. Johnsbury & Lake Champlain Railroad Company, a corporation existing by virtue of the laws of the State of Vermont, as first party, and the Boston, Concord & Montreal Railroad, a corporation existing by virtue of the laws of the State of New Hampshire, as second party, witnesseth:

That, whereas, the first party is possessed of a railroad extending from Lunenburg, Vermont, to a connection with the Lamoille Valley Extension Railroad, in Swanton, Vermont, and owns a branch from North Concord, Vermont, known as the Victory branch, and,

Whereas, the larger portion of the business for transportation upon the roads of said first party is a business which, in its course to and from market, passes over the road of the second party, rendering it of importance that the management of the roads of both parties should be uniform or identical, in the interests of economy, efficiency, and the public convenience; and,

Whereas, said first party has not the means to provide equipment adequate to the demands of said business, and is hampered and burdened by its floating debt;

Now, therefore, the said parties, in consideration of the agreements hereinafter mentioned to be kept and performed by each respectively, have contracted, and do hereby contract and agree, that all the transportation of every kind upon and over the roads of said first party shall, for the ninety-nine years next ensuing, unless sooner terminated as herein provided, be performed by said second party, or its lessee, the Boston & Lowell Railroad Corporation; and in furtherance of said agreement, said first party hereby assigns and transfers to said second party, or its lessee making such transportation, the railroad tracks, including side-tracks, of said first party, and also all its right and interest in and to the rolling stock, tools, machinery, and supplies, and other personal property used in connection with said railroad, together with all the lands, stations, buildings, rights, easements, and appurtenances connected therewith, owned, used, or occupied by said first party upon or along said railroad, and particularly all interest of said first party in and to the Steamer Maquam, her tackle, apparel, and furniture, and to the docks and wharves used in connection therewith on Lake Champlain, with

full right and authority to said second party to use said rights and interests and property as fully as said first party might or could if this contract had not been executed.

And said first party does hereby constitute and appoint the said second party, or its lessee, the Boston & Lowell Railroad Corporation, at the option of said second party, its agent or attorney, to do all things necessary properly and efficiently to perform the duties devolving upon said first party under its charter, and thereby authorizes said attorney to do all things necessary to perform the same; and said second party, and its lessee, operating said railroads, are hereby authorized and empowered to regulate all fares and tariff prices for transportation, regard being had to the requirements of law; and to receive all tolls, fares, and compensation for such transportation, and to make all rules and contracts relating thereto.

Said second party, in consideration hereof, agrees to operate the railroad and property of said first party economically, and as efficiently as it is now operated, and in accordance with law in all respects, and to pay over to the treasurer of said first party semi-annually, on the first days of October and April in each and every year, the net earnings from the operation of the railroad and property of said first party, which shall remain of the gross earnings after the payment by said second party, or its lessee operating said roads of said first party, of all proper cost and expense of operating said roads, of keeping the same and the property hereby transferred in repair as hereinafter provided, of payment of all taxes assessed thereon, of all proper insurance placed thereon, of all additions thereto, and improvements thereon which shall be made in accordance with the provisions hereinafter named, of all interest upon any floating or funded indebtedness of said first party paid by said second party, or its lessee, of expense for keeping up the organization of said corporation as hereinafter agreed, and payment of any other legal, proper, and necessary expenses arising out of the transaction of said business, or defending any suits, or payment of any damages, which said first or second party, or its lessee, shall defend or pay for said first party. And said second party hereby agrees that it, or its lessee, will make up any deficiency in the earnings of said roads that may be required to pay, during the continuance of this agreement, the interest of all the indebtedness of said first party contained in the schedule hereunto annexed, or hereafter assumed by said second party in addition thereto, and to pay the operating and other necessary expenses hereinbefore enumerated to be paid out of the gross earnings.

Said party agrees that the books, papers, and accounts pertaining to the operation of said railroad and property shall be open at all times to the examination of the executive committee of the first party, or to any person authorized by its directors in writing therefor.

Said second party further agrees, from the gross earnings of said St. Johnsbury & Lake Champlain Railroad and other property hereby transferred, to pay the expenses of keeping up the organization of said first party, such expenses not to exceed in any one year the sum of five hundred dollars.

And said second party, for the considerations aforesaid, further agrees that in furtherance of this contract, and to enable said first party to carry out the same, it will carry or cause to be carried, upon the notes of said first party, with all the unsold mortgage bonds and mortgage bonds to be hereafter issued under the terms of the mortgage securing the same of said first party, and all the personal property of said first party, including the rolling stock of said roads and additions thereto, as collateral security thereto, the floating indebtedness of said first party now outstanding, which shall be contained in the schedule hereto annexed.

Said second party contracts and agrees that during the term of this contract it will, out of the earnings thereof, maintain, preserve, and keep the railroad of said first party in as good condition and repair as the same now is, and it will also maintain, preserve, and keep the side-tracks, station-houses, buildings, appurtenances, turn-tables, rolling stock, machinery and fixtures, wharves and steamboat property pertaining to said railroad in as good order and repair as the same now are.

The parties hereto agree that an examination of the property of said first party, transferred under this contract, shall be made by Albert B. Jewett, in behalf of said first party, and by John F. Crockett, in behalf of said second party, or other parties to be chosen by each party respectively, should either of the above decline to serve, who shall schedule the same, and report in writing upon the condition in which the same is at the time this contract goes into effect, and said report and schedule shall be attached hereto; and if said Jewett and Crockett, or parties chosen in their places, shall disagree as to the condition of said property, they shall choose a disinterested person as umpire who shall not be connected with either road, whose decision in such disputed matters shall be final.

Said second party agrees that it will, during the continuance of this contract, operate the railroad of said first party so as to fulfill all the duties and obligations of said first party to the public according to law; that it will comply in all respects with the requirements of the law, and that it will not knowingly subject said first party to any penalty of forfeiture for violation of law in any respect; and that at the expiration of this contract, or earlier termination thereof by consent of said parties, or otherwise, it will return said railroad, rolling stock and other property of said first party, or like rolling stock and other property of equal value, quantity and quality, in as good order and condition as the same now is, without depreciation of its general condition in any respect.

In case any additions to the estate, or permanent improvements of said railroad or property of said first party, shall have been made by said second party at any time, such additions and improvements shall not be paid for by said first party, unless the same shall have been made with the consent in writing of the committee hereinafter provided.

Said first party agrees that it will perform all acts necessary and proper to enable said second party to efficiently operate said railroad and property, and will take and execute such contracts of lease or otherwise with connecting railroads as may be desired by said second party, or its lessee, reasonable indemnity being offered in the premises.

Said second party agrees that in determinating the income of said first party, so far as any interchange of business between stations on their respective roads to and south of Concord, N. H., is concerned, the divisions on said business shall be *pro rata*, allowing said first party its full mileage of one hundred and twenty miles in all cases, and said second party shall receive its actual mileage in all cases, and no arrangement shall be made changing the divisions above established, except by consent of the committee hereinafter named.

Said first party agrees that it will not increase its indebtedness beyond the amount of the same at the time of the execution of this contract, and contained in the annexed schedule, thereby increasing the burden of said second party in carrying the same, without the consent of said second party in writing.

And it is further agreed that for the first ten years of the duration of this contract, and until Horace Fairbanks, Franklin Fairbanks, and Albert B. Jewett, all of St. Johnsbury, Vermont, shall dispose of their stock, amount-

ing to 21,342 shares in said St. Johnsbury & Lake Champlain Railroad Company, no permanent additions to the road-bed, stations, depots, and other real estate of said first party, and no increase of its funded or floating indebtedness, and no change of the divisions of receipts for interchange of business as herein provided, shall be made, except with the written consent of a committee, or a majority thereof, consisting of said Horace Fairbanks, Franklin Fairbanks, and Albert B. Jewett, and Edwin Morey of Boston, Massachusetts; and if said Morey shall de cease or resign, or become incapacitated from any cause, said Boston & Lowell Railroad Corporation shall elect some person in his stead; and in case either Horace Fairbanks, Franklin Fairbanks, or Albert B. Jewett shall de cease or resign, or become so incapacitated, his place shall be filled by the survivor or survivors of them, and the persons so elected shall act as said committee. If at any time said Horace Fairbanks, Franklin Fairbanks, and Albert B. Jewett shall cease to own the stock of the first-named party now owned by them, the functions and powers of this special committee shall end. After said ten years, or after said special committee shall cease to exercise their duties, the directors of said first party shall select said committee, if they shall so elect.

Said second party hereby agrees that this contract may, at any time after three years and during the first ten years thereof, be terminated by a majority vote of the stock of the first party, voting at a regularly called meeting of the stockholders for that purpose and on six months' notice thereof in writing to the second party and its lessee; but before such termination is complete and possession is surrendered, said first party shall tender payment to said second party, or its said lessee, for all permanent additions made agreeably to the foregoing provisions of this contract, and shall fully relieve said second party from all existing liabilities assumed in carrying the indebtedness of the first party; and said second party may terminate this contract at any time when, from any cause arising from the act or neglect of said first party or its servants, or of those owning a majority of the stock of said first party, or by any judgment or decree of court, the control and operation of the property herein transferred, and the traffic thereof, is taken from said second party, or the said lessee.

Said first party may at any time terminate this contract, if said second party, or its said lessee, shall fail to do and perform any of the agreements hereinbefore contained, to be by it done and performed, and such failure shall continue for the space of sixty days after it shall have been notified, in writing, of such failure, by said first party, said notice to contain a specification of the particulars of the claimed failure or failures, and to be given to the treasurers of said second party and of said Boston & Lowell Railroad Corporation.

In virtue whereof the parties hereto have hereunto set their hands and affixed their seals this first day of April, 1885, the St. Johnsbury & Lake Champlain Railroad Company by Horace Fairbanks, its president, and the Boston, Concord & Montreal Railroad by J. Thomas Vose, its president, and Edward D. Harlow, its treasurer, thereto duly authorized.

In presence of
(Signed) C. S. MELLEN.

ST. JOHNSBURY & LAKE CHAMPLAIN
RAILROAD COMPANY, [Seal.]

By (signed) HORACE FAIRBANKS, *President*.

BOSTON, CONCORD & MONTREAL R. R.,
(Signed) ARTHUR J. BENNETT.

By (signed) J. THOMAS VOSE, *President*,
EDWARD D. HARLOW, *Treasurer*,
Committee duly authorized. [Seal.]

REPORT
OF THE
FISH AND GAME COMMISSIONERS
OF
NEW HAMPSHIRE
TO THE
GOVERNOR AND COUNCIL,
JUNE, 1888.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1889.

REPORT.

To his Excellency the Governor and Honorable Council:

The Fish and Game Commissioners submit their report for the year ending June 1, 1888.

REPORT OF ELLIOTT B. HODGE,

SUPERINTENDENT OF PLYMOUTH AND SUNAPEE HATCHING STATIONS.

To George W. Riddle, Chairman of Commission on Inland Fisheries and Game for the State of New Hampshire:

In January, 1887, there were received at the state hatchery from Bucksport, Me., 400,000 Penobscot salmon eggs, which, with the eggs taken from the Merrimack-river salmon taken in the Pemigewasset river at Plymouth, were hatched with a loss of less than two per cent, and the young fry were placed the last week in May in the Pemigewasset river at various points from one to twenty miles above Livermore Falls. No loss occurred to the young fry, either in the hatchery or in planting. The young salmon have been unusually plenty in the river.

It gives me pleasure to report that there has been a larger number of salmon in the river this season than any year since the Lawrence dam was built. Forty salmon were taken in the fish ponds, from which a large number of eggs were taken. Many more salmon would have been taken had not the heavy July rains kept the river so

high that it was impossible to use the nets for nearly two weeks during the heaviest part of the run. The salmon that went over the falls at that time passed up to their old spawning-grounds near the head waters of the river; and while we do not get the full benefit of the eggs they would have yielded had they been secured, yet they are not a total loss, as many of the eggs will hatch and help in restocking the river.

The largest fish taken was a female, forty inches in length, weight twenty-four pounds; the smallest a grilse, weight four and one half pounds. This was the first grilse taken in the nets since the station was established.

As instructed by the Massachusetts and New Hampshire commissioners, I sold 93 pounds of the large male trout for \$32.25, and purchased 1,806 wild brook trout from four to eight inches in length. There are many more of the male trout that should be disposed of.

The tile pipe from the main spring broke twice during the winter, causing considerable trouble to find the place and repair it. I have taken it up for a distance of ninety-five feet in front of the hatchery, and replaced it with a two-inch iron pipe. There are many springs in the ground in front of the house where the tile pipe was laid, and the washing away of the soil from under the short pieces allowed them to drop. The iron pipe obviates this difficulty.

There have been hatched and distributed from the Plymouth hatchery since my last report, 452,000 trout, including the eggs purchased by me for the summer residence of Waterville, and 20,000 of the new Sunapee trout brought from that station, 140,000 land-locked salmon, 500,000 Penobscot salmon, 30,000 Loch-Levan trout from Scotland, presented by Dr. J. D. Quackenbos, of Columbia College, New York, 3,000 saibling from Germany, 5,000 brown trout from Germany. The distribution was as follows:

BROOK TROUT.

Lebanon	10,000
Pittsfield	15,000
Epsom	5,000
Northwood	15,000
Acworth	5,000
Colebrook	5,000
Stewartstown	10,000
Columbia	5,000
Campton	8,000
Concord and vicinity	25,000
Canaan	10,000
Newport	10,000
Belmont	10,000
Canterbury	10,000
Waterville purchased	20,000
Waterville	10,000
Boscawen	5,000
Claremont	18,000
Penacook	10,000
Milford	10,000
Dover	5,000
Durham	5,000
Lee	5,000
Rollinsford	10,000
Exeter	18,000
Goffstown	5,000
Plymouth	10,000
New Ipswich	5,000
Temple	5,000
Manchester and vicinity	28,000
Bedford	10,000
Keene and vicinity	20,000
Harrisville	5,000
Troy	5,000

Warren	5,000
New Boston	5,000
Litchfield	5,000
Hillsborough Bridge	10,000
Bemington	10,000
Peterborough	15,000
Nelson	10,000
Gilford	10,000
Warren Summit	10,000

SUNAPEE LAKE TROUT.

Long pond, Concord	10,000
Harrisville	10,000

LAND-LOCKED SALMON.

Moultonborough	5,000
Madison	10,000
Squam lake	15,000
Peterborough	10,000
Winnepesaukee lake	10,000
Conway	10,000
Newfound lake	50,000
Stinson pond, Rumney	10,000
Harrisville	20,000

PENOBSCOT AND MERRIMACK RIVER SALMON.

Pemigewasset river	500,000
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Total distribution from the Plymouth hatchery :

Brook trout	452,000
Loch Levan trout	30,000
Land-locked salmon	145,000
Penobscot salmon	500,000
Brown trout	5,000
Saibling	3,000
From Sunapee lake station, various kinds	335,000
Total	1,470,000

February 29, 1888, the hatchery at this station, with all its contents, was destroyed by fire. I was absent in Boston, attending the annual meeting of the Massachusetts and New Hampshire commissioners, and am unable to say how the fire originated. The building and fixtures were insured for \$500. A temporary building was immediately put up on the old floor, new hatching-troughs made, and the land-locked salmon and other eggs that had not been received when the fire occurred, were hatched and distributed. As instructed by the Massachusetts and New Hampshire commissioners, I have commenced rebuilding the hatchery, and it will be ready for use by the 1st of September.

SUNAPEE LAKE STATION.

From this station there were planted in Sunapee lake in May and June:

Brook trout	150,000
Salvelinus Aureolus, or the new Sunapee trout	200,000
Land-locked salmon	45,000
Loch Levan trout	30,000
California trout	10,000
Total	<hr/> 335,000

The Legislature for 1887 appropriated \$600 annually for two years for enlarging the hatchery, new water supply, and carrying on the work at this station. One thousand feet of 2-inch iron pipe has been laid, the capacity of the house enlarged to nearly half a million, a new camp built for the use of the superintendent and men in the fall, camp furniture and other articles needed purchased.

Work was commenced in September, and the last eggs taken the last week in November. The water being unusually high, most of the brook trout were taken in

pound nets set in the mouth of the brooks. The number of eggs taken, with the land-locked salmon eggs sent there in March, were enough to fill the house to nearly its full capacity. These eggs being taken from wild trout of very large size, from one to seven pounds, produce very large, healthy fry, and the work of the commission is showing remarkably well in the large increase of the catch of salmon and trout.

The so-called new (?) Sunapee trout has been classed as a distinct species, at present found only in this lake, and has been given the name of *Salvelinus Aureolus*, or golden trout.

BLACK BASS.

Here I wish to say a word in favor of the much abused and misunderstood black bass. Previous to the introduction of the black bass into Sunapee lake it was not known as a trout lake except to a few in its immediate vicinity, and the catch of trout, with the exception of those netted and speared during the spawning season, was very small. The lake at that time was infested with large numbers of small yellow perch, which destroyed the young trout as soon as hatched. Especially is this true of the *Aureolus*, they being lake spawners. The black bass have destroyed the perch, and in their place are now taken hundreds of the finest trout in the world. Here we have a lake noted for its excellent bass fishing, and at the same time one of the finest trout and salmon lakes in New England; and no fisherman on the lake has ever made complaint that the bass interfered with the trout in any way.

I herewith submit a statement of the expenditure of the \$600 appropriated for the year 1887, for the Sunapee station :

FINANCIAL STATEMENT.

Paid Willson, Larrabee & Co., camp bedding .	\$16.42
B. M. Stanley, labor and material . . .	40.25
B. M. Stanley, labor on hatchery and lum- ber	55.39
A. B. Currier, labor	2.00
F. C. Keyes, stove tinware, etc.	16.29
W. W. Trow, labor, lumber, nails, paint, etc.	222.00
G. A. Hart, camp furniture.	24.00
C. A. Knowlton, camp supplies	9.49
Thomas A. Lane, iron pipe and labor . . .	136.35
Freight and express	6.16
Woodsum Brothers, labor	7.00
Woodsum Brothers, use of boats	25.00
B. E. Badger, surveying and plan	12.00
Camp supplies	20.63
Total	<u>\$592.98</u>

For which vouchers are on file at the office of the state treasurer.

Respectfully yours,

E. B. HODGE,

Supt. of the Plymouth and Sunapee Hatcheries.

PLYMOUTH, N. H., June 1, 1888.

REMARKS.

The restocking of trout brooks, streams, and larger bodies of water in the State with young fry produced at the hatching-houses has proved very satisfactory. The hatch of young fry was greater, the distribution more general, covering a larger area of state waters, than ever before. The many reports received by the commissioners from different sections of the State show a large

increase in the number of fish taken during the open season of this year. Many thousands of the finest edible fishes are distributed annually in the waters of the State, and the effect upon the food supply cannot be overestimated. The natural result of over-fishing means a rapid depletion of the number of fish in its waters, and final exhaustion of the supply. Experience has taught us that artificial propagation, properly conducted, is the only available remedy to save our fish from destruction, with a rigid observance of the law prohibiting the taking of fish in the closed or breeding season; and there is no doubt, if the commission of fisheries had not been established, many of the varieties of fresh-water fish in this State would have disappeared. The commissioners take pride in the fact that the results obtained for the past year are in excess of any previous year since the organization of the commission. To keep up the supply of fish in waters easily accessible, or near thickly inhabited sections of the State, it is necessary to restock the waters every year; and to get satisfactory results, the planting of young fry must be continuous. No agriculturist would think of obtaining an annual crop without reseeding his ground, and so it is in the successful culture of fish,—the waters require to be restocked and protected.

There has been a request from many sections of the State to increase the number of young fry allotted to the towns, and from new localities that have not been stocked in previous years, which the commission has been unable to supply. To meet this growing demand a special effort was made to largely increase the number of eggs, both at Plymouth and Sunapee, for the spring distribution of 1888, and the effort for increasing the supply was a marked success. The Plymouth hatchery contained a larger and better supply of eggs and fry than ever before. It was crowded to its full capacity.

Unfortunately, on the 29th day of February, 1888, the hatchery and all of its contents were destroyed by fire, causing an irreparable loss to the State, not so much in the burning of the hatchery building, as that could be rebuilt, but more than a million and a half of eggs and fry, which no money can replace, were burned up in the conflagration, besides the many weeks of labor and care bestowed by the commission in collecting and producing them, causing not only a great disappointment to them, but to the many applicants who wanted them to restock and restore the waters of the State. The whole number had been allotted, and would have been distributed in the next two months had it not been for this misfortune.

The building was owned jointly by the State of Massachusetts and New Hampshire, the estimated value of which was \$1,000, upon which was an insurance of \$500. At a meeting of the commissioners of Massachusetts and New Hampshire, held in Boston soon after, it was decided to rebuild the hatchery at once, and to enlarge the same to meet the increasing demand. In compliance therewith a contract was made for the erection of a new hatchery, to be ready for occupancy early in the fall, the expense of which will not exceed \$1,000. It will be much more convenient and better adapted to the wants of the State than the one destroyed, which was erected many years ago.

Respectfully submitted.

GEORGE W. RIDDLE,
ELLIOTT B. HODGE,
JOHN H. KIMBALL,

Fish and Game Commissioners of New Hampshire.

REPORT
OF THE
FISH AND GAME COMMISSIONERS
OF
NEW HAMPSHIRE
TO THE
GOVERNOR AND COUNCIL,
JUNE, 1889.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1889.

REPORT.

To his Excellency the Governor and his Honorable Council :

The Commissioners on Fish and Game herewith submit the annual report of their official operations for the calendar year ending June 1, 1889.

Your commissioners deem it no longer necessary to dwell in much detail upon the importance of the work committed to their charge and the necessity that exists for its being continued.

The artificial propagation and free distribution of brook trout, land-locked salmon, and other food fishes, for stocking such waters as are adapted to them, is an undertaking of great economic importance to our State.

The artificial breeding of fish is no longer an experiment. Although it is still in its infancy, it has been demonstrated beyond all doubt that it is a proper and profitable work for the State to engage in, and deserving of the greatest possible encouragement.

The good results that have followed from the experiment of the Sunapee hatchery show that the time is not far distant when it will be found necessary to have other hatcheries on the more important bodies of water in other sections of the State, devoted wholly to keeping up the supply of game fishes in such waters. We have in the State 300 square miles of water, and it is impossible for one or two small hatcheries to turn out young fry

enough to keep up the supply in such a large area, especially when we consider that there is no State in the Union where the streams and ponds are so persistently fished during the summer months as they are in our State. The trout, land-locked salmon, and black bass fishing forms an important factor in inducing parties not only to visit our State, but to prolong their stay to the full extent of their vacation; and while the number of pounds of fish taken would amount to a large sum at a fair market price, it represents but a small portion of its value to the State when we consider the amount of money annually spent by the summer visitors from other States for board for themselves and families, for teams, guides, and boats.

Your commissioners would respectfully call attention to the great injury done to many of our trout streams by sawdust and mill refuse being dumped into the streams. A great deal of this is done by portable steam mills that move from place to place and generally locate so as to run the refuse into some stream to avoid the trouble of taking care of it; the owners not caring how much damage it may do to the fishing and, in many cases, to the riparian owners, by covering their meadows with sawdust.

That sawdust is an injury to fish life in a stream must be the conclusion to which every unprejudiced person who has examined into or given thought to the subject will arrive. The extent of this evil will be understood when we consider that for every thousand feet of lumber sawed forty bushels of sawdust go into the stream. The greatest injury to our streams by mill refuse is the destruction of the spawning-beds and young fry. The clear, gravelly eddies just below rapids are the places that are selected by the fish for spawning purposes, and, unfortunately, these are the places on which the sawdust

accumulates, and the bottom is no longer clear sand and gravel, but a foul mass of decomposing vegetable matter, capable, if present in large quantities, of generating heat enough to emit gas. The fish are thus deprived of the most favorable places for spawning, and even if they do find a place free from this refuse at the time they are depositing the ova, the late fall floods are liable to bury them with sawdust; and supposing that under all these unfavorable circumstances a small proportion of weakly fry have struggled into existence, the waters are so charged with decaying vegetable matter that the existence of the already weakly fry is still further imperiled.

The attention of towns is respectfully called to the importance of selecting men for fish and game wardens who will faithfully attend to their duties. In many towns this has been done. The laws for the protection of our fish and game should be strictly enforced. It is as much of a crime against the "peace and dignity of the State" to violate the game laws as petty larceny is, and in many cases the penalties are as severe. As long as we have these laws on our statute books they should be enforced, so that an honest man who is willing to obey the laws, and who would deeply feel the disgrace of being called upon to answer to a criminal charge at the bar of justice, may have an equal chance with those who are willing to run such risks. The thanks of the commission are due to the wardens who have faithfully carried out the law, and they are under many obligations for information and assistance rendered them. It is impossible for the commissioners without such assistance to enforce the laws in all parts of the State as efficiently as it should be done.

REPORT OF ELLIOTT B. HODGE,

SUPERINTENDENT OF THE PLYMOUTH AND SUNAPEE LAKE
HATCHING STATIONS.

*To George W. Riddle, Chairman of the Commission on Inland
Fisheries and Game for the State of New Hampshire :*

As instructed by the commissioners of Massachusetts and New Hampshire, I have rebuilt the hatchery that was destroyed by fire February 29, 1888. The new building is 55 by 26 feet, with an office and work-room at one end, painted inside and out, and finished in a thorough manner. The hatching-troughs are built of old-growth Michigan pine, which with new trays and other fixtures makes it a first-class hatchery in every respect. As the water pipes were not injured by the fire there was no expense for water supply, which is ample for the use of the hatchery. A new building 14 by 16 feet, to be used for boiling and cutting the meat for the trout, has been built near the breeding-ponds; it will also be used for the purpose of taking eggs in during stormy weather or when the sun is shining brightly. The total expense for buildings, fixtures, and appurtenances will not be far from one thousand dollars, of which five hundred dollars was paid by the insurance on the old hatchery and the balance by Massachusetts and New Hampshire. In painting the hatching-troughs I found it best for the first two coats to use brown oxide of iron mixed with paraffine varnish, followed by two coats of the clear varnish. The wire screens were given two coats of paraffine varnish, which prevents rust. These screens were invented by Mr. E. A. Brackett, chairman of the Massachusetts Board of Commissioners on Inland Fisheries, in the early days of fish culture, and are now almost universally used by fish-culturists, not only in this country but in

every country where this work is carried on to any extent.

One hundred thousand eggs were taken from the salmon captured in the Pemigewasset, and were hatched with a loss of less than two per cent. The number of brook trout eggs taken in 1887 was eight hundred thousand, of which four hundred thousand were sent to Massachusetts; the other half were destroyed by the fire. The number taken in 1888 was a little less than in 1887. Those retained as the share of New Hampshire were hatched with a loss of about four per cent, and were distributed in the different counties of the State; no loss occurred in distributing them. One female land-locked salmon, six and one half pounds in weight, was taken in the river. Over four thousand eggs were taken from her. No male of that species being taken, the eggs were impregnated with the milt of the *Salmo salar*, or Merrimack-river salmon. The loss on this lot was only forty eggs, or one per cent. Four hundred of these were treated with milt from a two-pound brook trout. A fair impregnation was obtained, but there seemed to be a lack of vitality in the embryos, and but few hatched, and what did died after a few days.

As instructed by the joint board of Massachusetts and New Hampshire commissioners at the annual meeting, January 23, 1889, I disposed of two hundred pounds of the large male trout for eighty dollars. This money has been used to purchase wild brook trout from four to eight inches in length. This not only saves two years' time in increasing the number of breeding fish but it introduces new blood and keeps the stock in a healthy condition.

The number of fry distributed from Plymouth in 1888 was as follows :

LAND-LOCKED SALMON.

Squam lake	10,000
Newfound lake	40,000
Connecticut lake	40,000
	<hr/>
	90,000

CALIFORNIA TROUT.

Sandwich ponds	12,000
	<hr/>
Total	102,000

From the Sunapee lake hatchery, 1888 :

Land-locked salmon fry, from eggs taken at hatchery	15,000
Land-locked salmon fry, from eggs sent from Plymouth	45,000
Brook trout fry	125,000
Aureolus, or the new Sunapee trout	150,000
California trout, sent from Plymouth	25,000
	<hr/>
Total	360,000

Fry distributed from the Plymouth station in 1889 :

LAND-LOCKED SALMON.

Newfound lake, Hebron river	20,000
Newfound lake, Fowler's river	15,000
Long bay at Lake Village	10,000
Gilmanton	10,000
Sandwich pond	5,000
Marlow	10,000
Wakefield	10,000
Munsonville	5,000
Chesterfield lake	5,000
Harrisville	10,000

Connecticut lake	25,000
Stinson pond, Rumney	10,000
Colebrook	10,000
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Total	145,000

BROOK TROUT.

Fabyan's	10,000
Jefferson	10,000
Boscawen	10,000
Greenfield	5,000
Conway	15,000
Crawford House	5,000
Claremont	10,000
Newport	5,000
Warner	10,000
Charlestown	10,000
New Boston	5,000
Hooksett	5,000
Bedford	5,000
Manchester	5,000
Chester	5,000
Goffstown	5,000
Peterborough	10,000
Fitzwilliam	5,000
Troy	5,000
Hancock	10,000
Marlborough	5,000
Litchfield	5,000
Penacook	10,000
Grafton	10,000
Canaan	10,000
Lebanon	10,000
New Ipswich	10,000
Temple	5,000
Milford	10,000

Concord and vicinity	20,000
Canterbury	5,000
Belmont	5,000
Andover	10,000
Colebrook	15,000
Littleton	10,000
Dover	10,000
Exeter	10,000
Madbury	5,000
Windham	10,000
Derry	5,000
Munsonville	10,000
Westmoreland	5,000
Waterville	10,000
Wolfeborough	6,000
Keene	5,000

 366,000

LAKE TROUT.

Brown's ponds, Wentworth	15,000
East pond, Enfield	20,000
Mascoma lake, Enfield	5,000
Long bay, Lake Village	20,000
Silver lake, Madison	20,000
Wakawan lake, Meredith	20,000
Total	100,000

CALIFORNIA TROUT.

Sandwich pond	5,000
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PENOBSCOT SALMON (*Salmo salar*).

Pemigewasset river	600,000
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Ten thousand California trout eggs were received from the United States hatchery at Northville, Michigan. They

came in bad condition, having been allowed to get too warm in transit, and only four or five thousand hatched.

SUNAPEE LAKE STATION, 1889.

Planted in Sunapee lake :

Land-locked salmon	.	.	.	.	.	75,000
Brook trout	.	.	.	.	.	80,000
Aureolus trout	.	.	.	.	.	100,000
Loch Leven trout	.	.	.	.	.	30,000

SILVER LAKE IN NELSON.

Aureolus	.	.	.	.	.	12,000
Total	.	.	.	.	.	<u>297,000</u>

PLYMOUTH STATION, 1889.

Brook trout	.	.	.	.	.	366,000
Lake trout	.	.	.	.	.	100,000
California trout	.	.	.	.	.	5,000
Land-locked salmon	.	.	.	.	.	145,000
Penobscot salmon	.	.	.	.	.	600,000
Total	.	.	.	.	.	<u>1,216,000</u>

DISTRIBUTED FROM PLYMOUTH STATION, 1888.

Land-locked salmon	.	.	.	.	.	90,000
California trout	.	.	.	.	.	12,000
Total	.	.	.	.	.	<u>102,000</u>
From Sunapee station, 1888	.	.	.	.	.	<u>360,000</u>
Total distribution in 1888-89	.	.	.	.	.	1,875,000

Had it not been for the fire the number would have been over 3,000,000 for the two years.

SUNAPEE LAKE STATION.

The work of securing the fish to furnish eggs for the hatchery was commenced in September. A fine lot of land-locked salmon was taken the last week of that month. The weight of the spawners was from four to twelve pounds. Seventy-five thousand eggs were secured. These eggs proved to be a very fine lot; the impregnation was excellent and the loss was less than four per cent. This is the largest plant of salmon ever made in this lake. The rough, stormy weather interfered seriously with the work of securing breeding trout, and the number of eggs taken was a little less than in 1888; but the large number of salmon eggs taken brings up the total plant to about the same number as that year. This lake is now more than self-sustaining, and, should the weather be favorable, more salmon can be secured than will be required to keep up the supply of fish in the lake, and the surplus can be used for other waters.

The aureolus were late in coming on their spawning-beds; still a fair number were taken, considering the weather, which was so rough that for nearly a week at a time it was almost impossible for small boats to cross the lake. During the year nothing new has come up in regard to this singular trout; neither has it been found in any other waters.

The work of the commission at this station is showing good results. The brook trout are increasing rapidly; a large number of salmon are taken every season, and owing to the abundance of food they grow to a large size. The black bass fishing was better in 1888 than it had been for some years; this, no doubt, was due to the screening of the outlet, which prevents large numbers from leaving the lake. It is to be hoped that the work will be continued at this station. It is now well equipped and in good condition, and only a small amount of money will be required to continue the work each year.

The thanks of the commission are due to Prof. Quackenbos for many favors rendered that have been of great assistance to the commission. Thanks are also due to the Concord Railroad Company, the Boston, Concord & Montreal Railroad Company, and the Boston & Maine Railroad Company, for favors received in aiding the work of the commission. Without the aid given by these roads it would have been impossible to accomplish the amount of work done without a much larger outlay of money.

FINANCIAL STATEMENT.

I submit a statement of the expenditures at this station for the year ending June 1, 1889 :

Amount left from 1887	.	.	.	\$7.02
Appropriation for 1888	.	.	.	600.00
				<hr/> \$607.02

1888.

Feb.	6.	Paid A. H. Powers, labor	.	\$154.06
	22.	A. B. Currier	.	11.48
		Amos Hastings, labor		17.00
June	2.	C. G. Davis, labor	.	19.07
	25.	Orrin Sheldon & Co.		44.78
Oct.	2.	Frank Jewett	.	8.50
	17.	J. M. Stewart & Sons		3.75
		camp supplies	.	23.83

1889.

		A. H. Powers, labor	.	122.00
Jan.	3.	C. A. Knowlton	.	11.89
		A. B. Currier	.	15.48
May	21.	F. P. Jewett	.	10.50
	12.	C. G. Davis	.	6.50
		E. B. Hodge, expenses		100.00
		C. G. Davis	.	35.00
				<hr/> \$583.84
		Balance	.	<hr/> \$23.18

There are one or two small bills that have not been presented. The balance is more than enough to pay them.

The expenses for the next two years will be much less than they have been for the past two years, as the station is now well equipped with camp, camp furniture, and boats.

E. B. HODGE, *Superintendent.*

PLYMOUTH, June 1, 1889.

The work done by the commission has been followed by good results, and the increasing demand for young fish shows that it is appreciated. Not over one half of the applications for young trout could be filled, and in many cases only small lots could be sent. To meet this demand, arrangements have been made to increase the stock of breeding trout at Plymouth by adding five thousand two-year-old trout to the stock already on hand. Of course not much benefit can be derived from these fish this year, although many of them will yield a few eggs, but the next two years will show a marked increase, so that we can have young fry enough to supply the demand.

There is no fish so well adapted to our mountain streams and ponds as the trout. They are the natural fish of our State, and as to their edible qualities there is no fish that excels them. The marked increase in the number of brook trout taken this season is in a great measure due to the plants made by the commission during the last few years; and while it is true that the most marked increase has been in the sections where the most work has been done, there is no doubt but what many streams that have not yet been stocked have derived benefit from plants made in other waters and to the protection that has been given them during the breeding season. The large number of summer visitors

that annually spend their vacations in our State subject our streams to an unusual drain, and the only way that the supply can be kept up is by making annually large plants in the best natural streams in the State. When we consider the fact that our trout fishing is fully as good to-day as it was twenty years ago, with the exception of streams where the trout have been killed out by the refuse of mills, and the fact that there are twenty who "go a-fishing" to-day to where there was one then, it proves conclusively that the work done by the commissioners in restocking the streams and compelling a better observance of laws during the breeding season has been of great benefit to the State and is deserving of liberal support.

SALMON.

The run of salmon in the Merrimack last season was the largest there has been since the restocking of the river began. A great loss of fish belonging to the river takes place every year by their being taken in large numbers by the weir fishermen on the coast. One weirman reported nearly eighty salmon taken in his nets, and as he was liable to a fine of fifty dollars for each fish, it is not at all likely that he reported more than were actually taken. The Pemigewasset is the natural breeding-ground for the salmon that come into the Merrimack, and there can be no hope of restoring the salmon to their former abundance unless the work is continued until a colony of native fish are established in the river.

BLACK BASS.

This game fish still holds his own, and affords a large amount of sport to anglers as well as many pounds of healthful food. The prejudice against this fish exists principally among those who know him the least. They are accused of converting themselves into a buzz-saw and

cutting pickerel of two and three pounds into pieces, a feat that is impossible for them to do. It is true that a portion of their food consists of small fish, such as chubs, suckers, minnows of all kinds, small perch, and smelts. The same is also true of the brook trout, the lake trout, and the land-locked salmon, with this difference,—the bass in this latitude feeds only about six months in a year, while the fish above mentioned are on their feed the entire year. Those who are loudest in their denunciation of the bass are not men who have given attention and careful study to the nature and habits of this fish. If they want to make a case against the bass, why do they not dissect them and find out what they really live on? Should they do this they will find, as Mr. H. C. Ford, president of the Pennsylvania commission did, who made a personal examination of thousands of stomachs of black bass, that their food consisted almost exclusively of insect larvæ and crustaceans. It is not probable that this noble fish, whose game and edible qualities are so highly praised in other States, has, in the pure and crystal waters of our mountain lakes, degenerated into a "tough and blackguard forever."

The most serious charges that have been brought against the black bass are that they destroy other species of fish and kill for the love of killing. The latter charge never has been proven, and as to the former let Dr. Henshall, who is regarded as the best authority on this fish in the world, testify: "I wish to say a word in reference to objections heretofore urged against the introduction of the black bass into Eastern waters upon the theory that the presence of the 'voracious' bass would militate against the increase of shad and salmon. The objections are not valid, or founded on fact, for the black bass prefers a diet of crawfish when he can get it, varying it with minnows, insects, larvæ, and frogs. The pike, pickerel, pike perch, and garfish are almost entirely

piscivorous in their habits, which might be expected from the character of their teeth, and their sins have no doubt been charged to the bass. But, while the black bass will take in a young salmon, or shad, if it comes in his way when hungry, he will not make them special objects of pursuit like the canine-teethed fishes above named."

LOCH LEVEN TROUT.

Thirty thousand eggs of this species were received from the United States commissioner. A few were retained at the state hatchery at Plymouth; the remainder were transferred to the Sunapee hatchery and planted in that lake, this lake coming nearer to its native habitat in many respects than any of the other lakes we have that are adapted to the trout family. There is a very strong resemblance in these trout at two years of age to the land-locked salmon of the same size. It is to be hoped that they will succeed in Sunapee, as they will add another attraction to that already famous resort, and by reason of having a hatching station there it will be easy to stock other waters from there, if they prove to be a desirable fish.

CALIFORNIA TROUT.

Not much success has attended the introduction of this fish into our waters. A plant of 25,000 was made in Sunapee last year. It is to be hoped that they will find in the deep, cold waters of this lake such conditions as are suitable to their wants, so that they will make their home in the lake and go into the brooks in the spring for the purpose of spawning. If they do not succeed in our lakes and ponds, the attempt to propagate them will be abandoned, as they are not adapted to our streams, or the streams are not suitable for them. They grow well when kept in confinement, but once placed in our streams they disappear. Whether they will show up later in the

lower reaches of our rivers, near the sea-coast, remains to be seen.

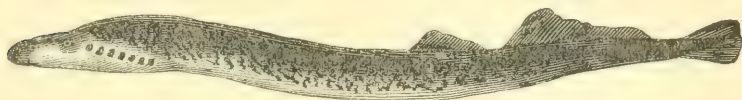
LAND-LOCKED SALMON.

In all cases where this fish has been planted in suitable waters it has succeeded as well as could be expected in the short time that has elapsed since its introduction. The rapid growth and game qualities of this fish make it a desirable addition to our list of game fishes. Some of our lakes are already famous as salmon lakes, and are attracting large numbers of anglers from other States. Although it is only a few years since they were introduced into our waters, they have grown far beyond the weight attained by them in most of the lakes to which they are aboriginal. Sunapee lake has now become more than self-sustaining. Seventy-five thousand eggs were taken there last season, which is more than is necessary to keep up the fishing to its present high standard, and no benefit has yet been received from the large plants made during the past three years. It has been found by experience that this fish will not succeed when placed in small ponds where there is no stream flowing into them large enough for them to go into for the purpose of spawning. Neither will they do well in such ponds if they contain large numbers of yellow perch. The perch are far more destructive to the young of the salmon family than the black bass, or even the voracious pickerel. But when planted in lakes like Sunapee and Newfound, they have proved themselves able to hold their own; and in such waters there is no doubt they have come to stay.

LAMPREY EELS.

The lamprey eels, placed in the Merrimack river above Amoskeag falls several years ago for the purpose of restocking the river, which was completely depleted for nearly twenty-five years, having been cut off from their

spawning-beds in the upper Merrimack by the erection of high dams at Lowell and Lawrence, has proved successful, and thousands of eels have passed up the Merrimack river through the fishway at Amoskeag falls the past



two years. The commission believing that the river has been permanently restocked, as they are a desirable food, would recommend a change in the now existing law so that they may be taken at any time and place, except within one hundred feet of any fishway.

WHITE PERCH.

This desirable food fish has been placed in several of the smaller ponds and lakes of the State to which it is suitably adapted. They are very hardy and productive; a small number of adult fish from four to six inches in length will soon show marked results. The flesh is white and fine grained, free from coarse bones, not like its cousin, the yellow perch, in any respect; it is highly prized as an excellent pan fish, none better except of the trout family. They are quite plenty in some of the Massachusetts ponds near the salt water, but none in New Hampshire. They were originally salt-water residents, but having been introduced into fresh waters, have become land-locked. No fish can be found that is better adapted to many of our smaller lakes and ponds. The commissioners for the past two years have been placing them in suitable New Hampshire waters with good success, and will continue to do so, believing them to be a very desirable acquisition to our food fishes.

GAME.

The non-export law has to a certain extent put a stop to the snaring of ruffed grouse, and has been the means of making these birds more plenty in our home markets. If the town wardens in the southern part of the State would look a little closer after this part of their duties, the whole business of snaring could soon be done away with. The rapid increase of the deer shows the wisdom of the law protecting them. In the northern part of the State it is very common to see deer feeding near the highway. In the Dimond ponds as many as seven have been seen in a single day, and they have been killed as far south as Manchester. We do not think much harm would follow if the open season were extended so as to include the month of December.

The thanks of the Commission are due to Col. M. McDonald, United States Fish commissioner, for liberal donations of valuable eggs.

Respectfully submitted.

GEORGE W. RIDDLE,
ELLIOTT B. HODGE,
JOHN H. KIMBALL,

*Fish and Game Commissioners of the
State of New Hampshire.*

MANCHESTER, June 1, 1889.

APPENDIX.

NEW ENGLAND TROUT.

We give an admirable article upon certain of the trout of New England by Dr. Tarleton H. Bean, ichthyologist of the United States Fish Commission, and curator of the United States National Museum, from which it will be seen that the New England States are more favored in their wealth of species of the red-spotted trout, which are properly charrs, than are the other States east of the Alleghanies, or, for that matter, in the Union. With the text are excellent illustrations of the fish described, from accurate drawings, for which we have to thank the United States Fish Commission. Dr. Bean has given what is known to science about the trout of which he writes, and portrayed the fish themselves, hoping that the text and cuts may aid in gaining to science, and to the angler, greater information about the fish in some of the obscure portions of their life history. He has used language that every one who fishes and catches fish can understand, and has been at no little trouble to avoid even the appearance of employing technical terms in his descriptions. Do not let any angler think that all there is to be known about these fish is now known, and if Dr. Bean seems to imply that the big Rangeley trout, for instance, is not in every case our common brook trout, *fontinalis*, it is not that he disputes what others claim for them, but the instinct of the careful scientific investigator comes to the surface, and he wishes, before naming the fish, by a personal examination of the trout on his laboratory table to satisfy himself of its identity. To use his own words, he must first see a fish before he can classify it. A gentleman of greater than national fame, because of his connection with the science and literature of fishes, in speaking of Dr. Bean, said:

"His conclusions are always safe, and he rarely has occasion to revise them. His work is too good to be done rapidly." An angler may call a *namaycush* a salmon, and he has to answer to no one for so doing; but the moment the ichthyologist, through a mistake in counting fin rays, scales, or cœcal appendages, discovers a new species, his brother scientists promptly desire to know the why and wherefore, and very properly Dr. Bean declines to classify the big Rangeley trout at arm's length. We trust that next season some successful angler in Maine waters will be willing to contribute a specimen or two of the big trout for the purpose of critical examination and dissection, that the matter may be settled whether or not all these giant fish are *fontinalis*. We have seen the picture of a big Rangeley trout that bears a resemblance to the trout of Sunapee lake, which Dr. Bean for the present calls *aureolus*; but a picture is not a fish in the flesh.

We recall that within a few years a writer in a contemporary claimed that he had seen or caught trout similar to the blue back, in waters somewhere about the lower St. Lawrence river, that weighed a number of pounds each. One has but to look at the two cuts of the Sunapee trout in Dr. Bean's article to realize how it may be possible for an angler to be mistaken. The young Sunapee, at the first glance, is an unmistakable trout with parr marks, while the adult fish is not unlike a land-locked salmon in general appearance. There are stranger things than that some of the big Rangeley trout may prove to have a lineage not now fully known, or that the blue back on occasion weighs more than a pound, or that the parents of the Sunapee were second cousins that met by chance in New Hampshire.

With such a difference in appearance between the young and the adult Sunapee trout, is it not possible for a blue back, that is always found of a few ounces in weight and with parr marks on its side, to grow into something that does not at least bear this evidence of immaturity? We do not presume to say what may be; information is sought, and anything that will throw light upon the trout represented and described will be received gladly by Dr. Bean, at the Smithsonian Institution, Washington, D. C.

— *Shooting and Fishing.*

THE RED-SPOTTED TROUT OF NEW ENGLAND.

ILLUSTRATED.

BY TARLETON H. BEAN.

There are at present known in Eastern North America seven species of red-spotted trout. With one or two exceptions they are all closely related to the common saibling of Europe. All of the species, except the brook trout, have teeth on the root of the tongue, called the hyoid bone. The largest species extend far to the northward — two of them to Boothia Felix and Greenland.

As a rule, our red-spotted trout with teeth on the root of the tongue have the large back fin and the tail fin without bands, while in the brook trout, which usually lacks such teeth, these fins are always banded and mottled. The small trout of Monadnock lake, in New Hampshire, has teeth on the root of the tongue and a forked tail; it has the large back fin and the tail fin banded, but the body has no vermiculations as in the brook trout.

This character of the absence of teeth on the root of the tongue in the brook trout is not to be absolutely depended upon in classification. In Labrador about ten per cent of the examples taken by Mr. Turner have such teeth feebly developed, there being never more than three of these present. From Castleton, New York, we have specimens with similar dentition. From Wood's Holl, also, such examples have been obtained. Teeth in this situation are exceptional in the brook trout, and occur most frequently in the northern portion of its habitat, where it probably has departed least widely from its ancestral type.

Four of the species of red-spotted trout are definitely known in New England waters, and as there is still some confusion and dispute about certain related forms, my friend, Mr. Cheney, has requested me to describe them, and "Shooting and Fishing" has secured new engravings from drawings belonging to the United States Fish Commission, in order that its readers may recognize the form and proportions of the species while following the descriptions, which are intentionally stripped of all technicalities. It is hoped by this effort to secure the co-operation of anglers and fish-culturists in arriving at a more satisfactory knowledge of the relations, distribution, and habits of our New England trout, and particularly with regard to the limit of growth of the blue back and the brook trout. The New England species now recognized by anglers and other students of fishes are the blue back, Sunapee, Dublin pond, and brook trout, to which we may add the introduced saibling. The following brief key will help to identify the native forms:

KEY TO THE SPECIES OF NATIVE RED-SPOTTED TROUT.

A. Teeth on root of tongue (hyoid bone).

1. Fins not banded; gill-rakers more than twenty; species of medium size, or small; land-locked in Eastern America.

a. Back blue; tail fin not tipped with white in the young; fins with or without white margins; size, very small; spawning in streams. — *Blue Back Trout*.

aa. Back grayish brown; tail fin tipped with white in the young; fins with white margins; size, large; spawning in lake. — *Sunapee Trout*.

2. Back fin and tail fin banded; body not mottled; gill-rakers fewer than twenty; size, small; species land-locked in Eastern America. — *Dublin Pond Trout*.

B. No teeth on root of tongue (usually).

1. Back fin and tail fin banded; body mottled; gill-rakers about sixteen; stomach very stout; lakes and streams, sometimes descending to the sea. — *Brook Trout*.

1. THE BLUE BACK TROUT.

Salvelinus Oquassa (Girard).

The following description contains all the important statements of the original account by Girard, in the Proceedings Boston Society Natural History, 1854:

It is from eight to ten inches in total length. The body is subfusiform, slender, and the most graceful in the trout family. The head is proportionally small, conical, coregonoid in shape. The mouth is smaller than in *S. fontinalis* (brook trout). The fins have the same relative position as in the brook trout, but are proportionally more developed, with the exception of the adipose (small black fin), which is considerably smaller; their shape is alike, except that of the tail fin, the crescentic margin of which is undulated instead of being rectilinear. The scales are somewhat larger, although they present the same general appearance as those of the brook trout. The lateral line is similar in both of these species. A bluish tint extends all along the back from the head to the tail, so that when



1. THE BLUE BACK TROUT. Young male, $9\frac{1}{2}$ inches long. Oquassa Lake, Me.

seen from above the fish appears entirely blue; hence the name of blue back, given to it by the settlers of the neighborhood. The sides and abdomen are silvery white in the female, and of a deep reddish orange in the male, and the sides are spotted in both sexes with orange of the same hue as the abdomen. The back fin and tail fin are brownish blue, bordered with pale orange in the male; the fins on the breast, belly, and behind the vent are of a fiery orange, blackish blue at their base, with their margins of the purest white.

The abode of the "blue back" is, as stated above, the Mooselucmaguntic lake, in which it is concealed during the greater part of the year, but about the 10th of October it comes near the shore, and ascends in shoals the Kennebago for the purpose of spawning. Half a mile above its mouth the Kennebago receives the outlet of Lake Oquassa; the trout there leaves the Kennebago to the left,

and runs toward Oquassa lake, where its voyage comes to a close. After the middle of November it goes back into Mooselucmaguntic lake, and is seen no more until October of the next year.

In the second annual report on the Natural History and Geology of Maine, published in 1863, Professor Holmes denies, on the authority of Professor Hitchcock, the statement that the journey of the blue black ends in Oquassa (Rangeley) lake, and says that it goes through Rangeley lake and up the Sandy river some distance.

The distribution in Maine is now limited to the Rangeley lakes, and their tributaries and outlets. We will not stop to discuss the probable extension northward of the species.

The blue back begins reproduction when about nine inches long, with a stock of only about from 50 to 100 eggs. It spawns in streams in October and November. The largest specimen in the National Museum is ten and one half inches long, and shows very distinct parr marks; in fact, all of our trout of this kind have such marks, and are considered young fish. It is said that the embryo blue backs have no white edges on the tail fin. The tail of the adult fish is distinctly forked.

The colors are thus described by Mr. Henry O. Stanley, in "Forest and Stream," May 5, 1887:

"I have never noticed any white line on the lower edge of the tail fin. . . . The adult fish does not have any white on the fins at all, like the brook trout. The fins of the males are bright red, or the color of bright autumn leaves. When taken from the water they are of a dark color; after death turn to a bright yellowish cast. The spots are very minute, very thick, very bright yellow and red, both thicker and brighter than on brook trout."

Mr. Samuel Garman notes the colors from specimens preserved in alcohol: "Back blue in life, olivaceous in alcohol. The sides have a rich reddish tint in the dark color. Scales of lower part of sides and of the belly silvery. Eleven parr marks on the side. In the larger specimens these marks are not distinctly defined, though quite visible; sides thickly sprinkled with small pale spots, red in life, which become smaller above the lateral line."

In a small specimen caught in Rangeley lake by Mr. Stanley, the colors are now much faded. Seven or eight parr marks are visible on the sides; the ground color of the back is light rusty brown; the

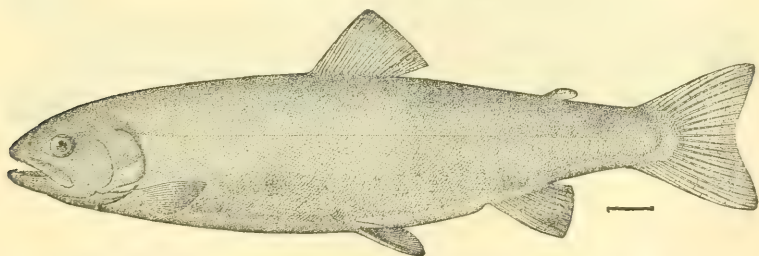
fins are without mottlings ; the breast fins, belly fins, and fin behind the vent are light yellowish ; the large back fin and tail fin are similar in color to the back.

The blue back resembles the Sunapee more than any other trout. It differs from the Sunapee in size, spawning habits, and markings of the young. The largest blue back definitely known weighs only a few ounces, while the Sunapee reaches ten pounds in weight. The blue back is a slenderer trout than the Sunapee, and lacks the clouded parr marks which are characteristic of the latter ; it is said to lack, also, the white edges found in the breast fins, belly fins, and the fin behind the vent of the Sunapee and some other species.

2. THE SUNAPEE TROUT.

Salvelinus aureolus (Bean).

This famous species is supposed to be limited to a lake in New Hampshire, from which it derives its popular name. Col. E. B. Hodge was the first to bring it to the notice of students of fishes in Cambridge and Washington. More than three years ago he sent specimens of it to Professor Baird, following them with additional examples in subsequent years. Dr. Quackenbos and Colonel Hodge secured the first young individuals, during the summer of 1887, that I had the opportunity to examine.

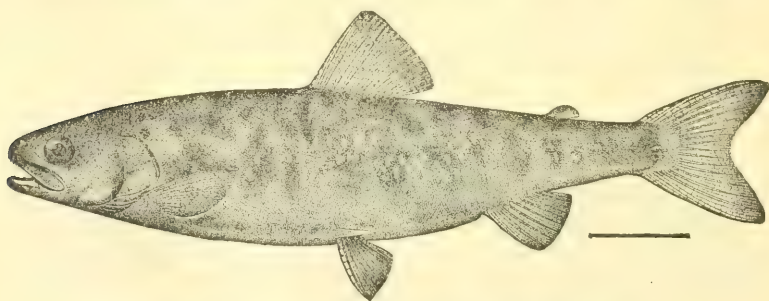


2. THE SUNAPEE TROUT. Adult female, $17\frac{1}{2}$ inches long. Sunapee Lake, N. H.

The first formal description of the Sunapee trout was given by abstract in "Forest and Stream," January 26, 1888, from the more complete account in the Proceedings United States National Museum of the same year. It will not be necessary to repeat the descriptions

in this place, as both the young and the adult are well illustrated by the cuts. The suspicion still remains fixed in my mind that the distribution of the Sunapee trout is not limited to the lake in which it first achieved notoriety. As to its actual relation to the blue back, there will be nothing new to add to that problem until the lovers of the trout tell us more about the large, red-spotted species of the Rangeley lakes.

The Sunapee trout attains to the weight of ten pounds, when it resembles a salmon rather than a charr. The spawning season begins in October, and continues through November. The smallest spawning female in the national collection is about eleven inches long. Colonel Hodge says that these trout do not go into the streams to spawn. According to Mather, the very young fish have white edges on the tail fin. In summer the trout are found in from 40 to 80 feet of water. The young remain in deep water, and do not come upon the shoals until they are ready for breeding. In adult males the teeth are stronger and the jaws longer than in females. The lower jaw has a small, but prominent, cartilaginous knob fitting into a slight cavity in the front of the upper jaw. The fins of the male are larger than in the female, especially those upon the breast.



3. SUNAPEE TROUT. Young, $7\frac{3}{4}$ inches long. Sunapee Lake, N. H.

A young male trout caught by Dr. Quackenbos in summer had in its stomach an earth-worm and remains of a squash beetle.

One noteworthy feature of the Sunapee is the very strong patch of fine teeth on the root of the tongue, between the lower insertions of the first two pairs of gills. It will be observed that the parr marks of the young fish are supplemented by band-like markings or

blotches on the back. The resemblance between the Sunapee trout and the imported saibling is very great, and has been observed by Colonel Hodge as well as myself.

The following color notes are taken from letters written by Colonel Hodge and Dr. Quackenbos and from studies of fresh specimens forwarded by these gentlemen to the National Museum:

“During the summer they are very light, — almost white. They are not mottled on the back like the other trout in the lake. If it were not for their peculiar fins it would be hard to tell them from the land-locked salmon in the water. The smaller ones, from one to two pounds, are almost black on the back but orange on the sides. These fish grow very large, reaching ten pounds and over. When first taken they are a deep golden orange on the sides, and as the males roll up in the water they look like a broad band of gold.” — *Hodge*.

“One great difference between the Sunapee trout and the blue back of Maine is the broad white band on the fins. This year I measured some that were over half an inch in width.” — *Hodge*.

“The females have a brownish back; sides lemon color. Small males have the back bluish black; large ones are much lighter, in fact almost cream color. Some are very light olive, sides and belly golden orange. The fish is entirely destitute of mottlings on the back.” — *Hodge*.

Dr. Quackenbos says: “The coloration of the sides varies from a dead lustre cream tint or a delicate olive to a dazzling orange, which, in some specimens, deepens into a dark steel blue on the back, always destitute of mottling and with none of the characteristics of the brook trout. The spots are generally secondary, though in some fish vermilion specks are a conspicuous feature, while in others spots of any hue are hardly perceptible. Occasionally the females are as highly colored as the males.”

The young specimens taken in the summer and preserved in alcohol had the sides silvery white; back with six or more well-defined band-like markings and some intervening dark blotches of irregular shape; ten parr marks and numerous small roundish white spots on the sides. A female of eleven inches had many parr marks and pseudo-bands plainly visible on the sides. Fresh specimens recently obtained from Colonel Hodge showed the colors not differing materially from the above notes and the published

descriptions. The white margins of the lower fins are present as usual, and the orange vermilion of the belly is repeated in a little dash upon the tips of the jaws.

3. THE DUBLIN POND, OR MONADNOCK LAKE, TROUT.

Salvelinus Agassizi (Garman).

This handsome little trout is found in some small lakes of New Hampshire. Garman, who was the first to describe it, considers it a variety of the brook trout. In coloration it has considerable resemblance to this species in its banded back fin and tail fin, but it never has vermiculations, or mottlings, on the back. The tail is forked and there are teeth on the root of the tongue. The stomach is stout and the number of appendages at its pyloric end in some examples is forty-nine. The scales are about as large as in the brook trout and the shape is similar in specimens of equal size of the two kinds. Garman observed that the young are more slender, with deeper fork of the tail and the sides more silvery than in the brook trout, and ornamented with clouded parr marks. Fresh specimens seen in the national collection in 1884 were silvery gray on the upper parts, whitish below. The fins on the breast, belly, and behind the vent were chiefly vermilion. A few vermilion spots on the sides.



4. MONADNOCK LAKE TROUT. Adult, $8\frac{1}{2}$ inches long. Monadnock Lake, N. H

Garman gives the following color notes :

“The young are much darker colored than the adults; on both the red spots of the flanks are large and numerous. On the adult

the brown color has become so much bleached that the specimen is nearly uniformly silvery; very faint indications of the red spots remain."

The Dublin pond trout is generally designated as a light-colored, slim, and silvery fish. It is said to spawn on the same bed but about two weeks earlier than the brook trout, the latter not making its appearance until the smaller and more graceful relative has disappeared to its reputed abode in deep water. Garman's largest individuals were about a foot long.

4. THE BROOK TROUT.

Salvelinus fontinalis (Mitchill).

There is in Cristine lake, New Hampshire, a form of the brook trout which is remarkable for its elegant shape and its peculiar coloration. The proportions are about the same as in the Dublin pond trout. The ground color of the sides and upper parts is a rich purple. The sides are profusely ornamented with vermilion spots. The breast fins, belly fins, and tail fin, after preservation in alcohol, are largely suffused with vermilion. There are no teeth on the root of the tongue.

The coloration and the shape seem to be the best means of separating the brook trout from the blue back group. The former is usually short and deep in comparison with the long and slender proportions of the latter, and it is invariably vermiculated, or mottled, on the back, besides having bands on the fins of the back and tail.

It is said that the brook trout reaches a weight of ten pounds or more, especially in the Rangeley lakes. I wish we had a few individuals of that size, but I suppose they would be so dear to the heart of the angler fortunate enough to land one that we shall never see anything better than a photograph of the fish with a rule by its side and a laudatory legend somewhere near.

SMITHSONIAN INSTITUTION,
WASHINGTON, December, 1888.

FISH DISTRIBUTION.

Strange as it may seem to the angler familiar with the habits and habitat of the fish he delights to catch, there are men who have an idea that fish will live and thrive in any water and under any conditions, provided only that the water is wet. A single instance of many will illustrate this. Some years ago two gentlemen of means, desiring to surprise and benefit their fellow-men, for neither was a fisherman nor did they take any personal interest in fish or fishing, sent to a state hatchery in the State where they reside and procured and paid for the distribution of nearly 20,000 lake trout, and deposited them secretly in a pretty little pond near their home. It was philanthropy, pure and simple, for they did not expect or desire to derive any direct benefit from their generous action; they only wished to furnish fishing for those who were fond of fishing, and as the pond was attractive, an easy drive from town, and had no trout, they concluded to supply them.

They did the planting secretly that the fish might get a firm hold in their new home before it was known that the pond was stocked. Finally, one of the gentlemen told the writer what had been done, and asked what was thought of the prospect for the future of the trout. The writer, in the interest of truth, was obliged to say that he knew of the plant before the sun went down the day the fish were deposited, and, furthermore, the trout were probably dead, for the pond was small and shallow, and if the fry escaped the Scylla of warm water they would fall into the Charybdis of a swarm of pike, perch, sun-fish and rock bass. Not one of those young trout was ever seen after they were planted. If a hatchery attendant had gone to the pond he would have known that in it there was no future for the trout.

The New York fish commissioners have adopted some plain, common-sense rules to aid them in the intelligent distribution of the fish under their charge, to the end that transportation shall not be paid on fish fry that are to be wasted through ignorance. The applicant for fish fry has these and other questions confronting him which he must answer when filling out a blank asking for state fish. First, he declares that the fish fry are to be planted in public waters. Then he must give the name of the water, its location, its size, and the quality and ordinary temperature of the water; tell whether it is natural trout water or not, and, if it is a running stream, whether it runs through wild or cultivated lands. If it is a lake, the depth of water and character of bottom must be given. He is asked to state what constitutes principally the local food of the fish. Then comes a poser: "What is the sentiment of the locality in regard to the laws for fish protection, and is the law well enforced?" "Have fish of the kind called for done well hitherto in this water?" "Is the person who is to receive the fry experienced and competent to take care of and plant them?" These are straight-forward questions, showing that whoever framed them was the right man in the right place, and the commissioners could not do more unless they adopt and change the old circus clown's remark: "No answers, no fish!"

CULTIVATION OF BROOK TROUT.

BY E. B. HODGE.

The question is often asked, "Can the cultivation of brook trout be made to pay?" Under favorable circumstances there is no branch of aqua-culture that farmers can engage in that will pay as well as the culture of brook trout. Many, and in fact all, the failures that have occurred in fish culture in this country are due to a lack of the requisite knowledge of what is required to make fish-culture a success. When large numbers of trout are kept in small ponds they require an abundant and regular supply of wholesome food. If such ponds are situated near the sea-coast or large towns, such food can be obtained at a cost not exceeding one dollar and fifty cents per hundred pounds for coarse fish, while liver and lights can be had from the slaughter-houses for one cent per pound, or less. Any farmer who has a spring brook flowing through his land, where he can flow from one to two acres of mucky land, can raise all the trout necessary to supply his family without any artificial food; and by making spawning-beds in the mouth of the brook, such ponds would keep themselves well stocked.

If a small hatching-house be put up and the eggs secured and hatched, a ready sale would be found for the young fry at good prices; and every female trout one pound in weight will yield a profit of two dollars each year. The cost of food, if kept in small ponds, would not exceed twenty cents, while in large ponds with mucky bottoms they would require little, if any, artificial food. Artificial ponds of one or two acres in extent should have a depth of at least six feet over at least twenty per cent of their area. Trout from such ponds will always find a ready sale at from forty to fifty cents per pound, as they will be fully as fine flavored as though they were taken from natural streams or ponds.

—*The American Angler.*

LAND-LOCKED SALMON CULTURE IN THE UNITED STATES.

BY E. B. HODGE.

The land-locked or fresh-water salmon, about which so little is known by the anglers of this country, is not only a native of Maine but is also found in New Brunswick, Nova Scotia, and the Province of Quebec, as well as in the lakes and streams flowing into Hudson's bay. Although when first brought to notice it was given a geographical name, *Salmo Sebago*, yet it is now known to be indigenous to twenty or more lakes and ponds in Maine alone, where it is locally known as "black spot" to distinguish it from the brook trout; in Nova Scotia as grayling, while the far-famed winninish of Lake St. John is now acknowledged to be identical with the salmon of Sebago and Grand Lake stream.

The name "land-locked" is applied to the fish to distinguish it from the migratory salmon (*Salmo salar*), from the fact that it makes its home in the lakes to which it is aboriginal, or to which it has been introduced through the efforts of fish-culturists. While in many respects it resembles the salmon of the Atlantic coast, there is no difficulty in distinguishing the one from the other at any time after the first few months, and even when taken from a salmon river there is not the least difficulty in selecting the Sebago variety from the true salmon.

As a game fish the land-locked salmon has few equals and no superiors, requiring the same skill and nerve to bring it to net or gaff as it does to land its larger relative, the sea salmon. No angler will ever forget his first combat with this king of the water. As

soon as struck, a gleaming flash of silver is seen as he springs from his native element, turning a complete somersault, and so soon as he strikes the water, springing up again and again, shaking his head like an enraged tiger in his efforts to disengage the hook from his jaw. The leaps are so continuous that for the first few moments he seems to be in the air one half of the time, and you are never sure of him until you see his silvery form stretched on the bottom of the boat.

Within the last few years attempts have been made, with varying success, to introduce this valuable variety of the salmon family into the waters of the New England as well as some of the Western States. I say variety, for I do not consider it anything else than a variety of the *Salmo salar*. The State of Massachusetts was the first to undertake this important work, and, like all undertakings in which experience has to be gained as the work is pushed along, the first attempt ended in failure and disappointment. In 1869 Mr. Chas. G. Atkins collected some 5,000 eggs of what was then called the St. Croix land-locked salmon for the commissioners of Massachusetts. Of these only 1,800 hatched. An attempt was made the next year to secure some breeding fish at Sebago lake by Mr. E. A. Brackett, one of the commissioners of Massachusetts. He made an expedition to Songo river, one of the tributaries of Sebago lake, in which he was assisted by Dr. W. W. Fletcher, of the New Hampshire commission, and R. R. Holmes. They succeeded in securing a number of fine fish, some of them weighing fourteen pounds, but only eight lived to reach the state hatchery in Massachusetts. From these fish several thousand eggs were obtained. Mr. John Shields also secured for the Massachusetts commission something over 11,000 eggs from Grand lake, but few of these eggs hatched, and I can find no record of what was done with the fry.

After these partial failures nothing more was done until 1874, when in August of that year the commissioners of Massachusetts and Connecticut made an examination of Sebec lake and its tributaries, with a view of obtaining salmon eggs in large numbers. The United States commissioner, Professor Baird, also joined in the enterprise. A hatching-house and ponds were constructed at the mouth of Ship Pond stream, one of the tributaries of Sebec lake. Only 6,000 eggs were received by the Massachusetts commissioners

as their part of the eggs taken, from which 5,500 young fry were distributed.

Several thousand dollars were expended at Sebec, and after three years' experience it was found that the requisite number of adult fish could not be obtained; the works were abandoned and a change was made to Grand Lake stream, of which Mr. E. A. Brackett had succeeded in obtaining a lease. The work here was placed under the charge of Mr. C. G. Atkins, who succeeded in obtaining 900,000 eggs the first year. The works at this station are under the control of the Massachusetts, Connecticut, New Hampshire, and the United States fish commissions, each State contributing what money it saw fit, and the eggs were divided *pro rata*, according to the amount subscribed.

In 1887 land-locked salmon fry were planted in Squam and Sunapee lakes and Sandwich pond, in New Hampshire, and in all three places they have proved a success. Since that time many thousand young fry have been distributed annually in New England, New York, and many of the Western States.

The attempt to introduce this valuable fish into the waters of Massachusetts has not been attended with success, and the same may be said of Connecticut, but in many of the lakes of New Hampshire they have exceeded all expectations in growth and numbers, and the commissioners of that State are now able to supply their hatcheries with eggs from fish taken in their own waters. The growth of this fish in New Hampshire has been remarkable, in many instances exceeding two pounds a year, and in one case reaching twenty pounds in eight years.

There are many reasons why they should prove a success in New Hampshire and a failure in other States, but I will not attempt to give them here, as this paper is already too long.

—*The American Angler.*

FISH CULTURE.

BY SETH GREEN.

During the few years which have intervened since the discovery of fish culture, its practice has advanced with rapid strides, and although it is still little more than in its infancy, the laws which govern its management have been so far ascertained and applied that it is now an established art, capable of yielding vast results for the benefit of mankind. The days of doubt and uncertainty have passed away, and numerous experiments, leading invariably to the same end, have established it on a firm basis. For a time cautious persons, even when most enthusiastic, could not help questioning in their own minds what the final outcome would be, and whether all that was predicted for the new undertaking would be realized; but success in all well-considered and properly conducted attempts has swept away fear and hesitation, and experience may now be said to have fully confirmed the highest hopes of the most sanguine. The possibilities which fish culture suggested were far beyond what can be obtained in other fields of human labor, so greatly exceeding the best results in agriculture that it seemed impossible that they could be realized or that this enterprise would have remained so long undiscovered or undeveloped. But day after day and year by year the theory has been put into practical operation, where all its steps could be and were more accurately noted, and the incredible increase and profit obtained left but one conclusion. No person could be more cautious, more slow to express a positive opinion or to accept a hasty judgment, than the writer, but he feels at last that the public can give perfect credence to the claims of fish culture, provided that it be

conducted as intelligently and wisely as other departments of human labor.

It must not, however, be forgotten that this new art is as exact and exacting as any other, nor that it has its limits and must be managed with care and not slurred over or slighted. To the indifferent and ignorant it will yield no more than the cultivation of the land, and possibly not as much. Before entering upon the details of practical management it may not be unadvisable to take a general review of fish culture, and give some suggestions of practical application. It has been said that an acre of water would produce as much as five acres of land, if it were tilled with equal intelligence. In making such a comparison it must be borne in mind that the crop of one needs no manure, requires no care during its period of growth and after it has once been planted, and that it is harvested by simply taking it from the water in which it dwells. It is almost wholly profit. The other must not merely be planted, but must be fertilized at great expense, and worked and cultivated with assiduous labor of man and beast, and finally, when at last successfully harvested and saved from destruction through disease, insects, and the elements, it yields but a meager advance upon the cost of time and trouble.

It has been the habit to cultivate the land and neglect the water; the one has been reduced to a private ownership and constitutes a large part of individual wealth, while the other is a sort of common property too little appreciated to be reduced to possession where this is possible, and abandoned as a sort of waste to yield what it may without care to the few chance persons who make a living out of it. We have tilled the ground four thousand years; we have just begun to till the water.

Fish can be raised with less trouble and cost than any other article of food. The lakes and rivers are full of animal and vegetable life upon which fish can live, now wasted, but which should be utilized by stocking these waters with suitable varieties. There is not only an abundance of food, but it is also true that fish need less food to produce a given amount of flesh than is required by birds or land animals. The amount which will make a pound of poultry or beef will make many pounds of fish. This is owing to the fact that they are cold-blooded and usually inactive animals. When we see them

in the water they are in motion because they see us. At times they go long distances in search of breeding spots, but they are, as a rule, quite torpid in their habits. Animal action consumes the system. For this reason those who wish to fatten cattle or poultry keep them confined. Animal heat is also a great consumer of food, and a large share of all that is eaten by warm-blooded animals is needed to maintain this vital heat. As fish are cold-blooded, they need but little food for this purpose, and most that they take goes to make bulk and weight. The fact that this class of animals will live a long time without eating anything is familiar to all. There is but little waste of their systems in any way. We frequently see birds and fishes kept in the same rooms. While the first are restless and need constant care and feeding and frequent cleaning of their cages, the latter are almost motionless, unless disturbed, and as the water in which they are kept is usually clear and fresh, it has in it but little food. It may be true that a pound of fish does not contain as much nourishment as a pound of beef, but the difference is by no means as great as the difference in the cost of production. For some purposes of health it is much more valuable than a like weight of other food. Less care and labor are needed to raise fish than to raise other animals or even to raise vegetables.

We must give close attention to our flocks and herds throughout the year, and we must toil through a long season to make vegetables grow. Lakes and rivers are well said to be like fields prepared for seed.

Fish only need our help in one way. At breeding times their eggs are mostly destroyed by numerous enemies, and but few are hatched. By artificial means at a trifling cost nearly all the eggs can be saved and vast numbers of young produced. It is a curious fact that the stomachs of fish are so often found to be entirely empty of food, and the migratory varieties seem hardly to feed at all while preparing to spawn. This would imply either that they digest very rapidly or can go a long time without nutriment, and probably both of these deductions are true. Heat and motion are the main consumers of food, for animal bodies are physically machines, which must be supplied with fuel if motion is to be generated, and will wear out with friction unless the waste is restored. A man or a horse can only perform his share of work if his body is

thoroughly nourished, and, on the other hand, neither needs nor can digest his full amount of food unless he works. The terrestrial animals are warm-blooded and active, many of them, in their natural state, getting their food by the chase, whereas fish are cold-blooded, and, although occasionally making long journeys, are ordinarily quiet. The culture of fish has been gradually extended from one species to another until we have a fair idea of what can be done in all cases, and those even who try new experiments have much to guide them, and can, up to a certain point, tread with assured footsteps.

The following points upon fish culture seem to be established :

1. Fish culture, extending to every desirable variety of fish, is entirely practicable.

2. It may, under proper management, be made profitable to the producer, as much so or more than the cultivation of land, or of land animals, and on similar conditions.

3. It may furnish to all classes an abundance of cheap and most nutritious and healthful food.

4. It is absolutely necessary in order to the preservation of the fish of the country from total destruction.

5. Every section of our country, and all its creeks, rivers, lakes, and sea-coasts are available for this, care being taken that the right kinds of fish are selected for the waters into which they are placed, observing latitude, climate, temperature, and quality of water.

6. It may be carried on by stocking waters with young fry brought from hatching establishments, or by obtaining eggs for hatching, and both eggs and young fish may be transported safely to almost any distance.

7. The money capital required for these operations is small, skill, care, patience, perseverance, and common sense, the same as in any other business, being the chief requisites.

8. Individual enterprise is alone sufficient for success, though state action is desirable ; indeed, legislation is essential, if not to foster at least to protect those engaged in the business of fish culture.

LIST OF FISH COMMISSIONERS OF UNITED STATES AND CANADA.

THE UNITED STATES.

Col. Marshall McDonald, commissioner, Washington, D. C.
Capt. J. W. Collins, assistant in charge of fisheries division.
Richard Rathbone, assistant in charge of scientific inquiry.
George H. H. Moore, superintendent of distribution.

ALABAMA.

Col. D. R. Hundley, Madison.
Hon. Charles S. G. Doster, Prattsville.

ARIZONA.

J. J. Gosper, Prescott.
Richard Rule, Tombstone.
J. H. Taggart, business manager, Yuma.

ARKANSAS.*

H. H. Rottaken, president, Little Rock.
W. B. Worthen, secretary, Little Rock.
J. W. Calloway, Little Rock.

DOMINION OF CANADA.

Hon. John Tilton, deputy minister of fisheries, Ottawa.

Inspectors of Fisheries for 1888.

W. H. Rogers, Amherst, N. S.
A. C. Bertram, North Sidney, C. B. N. S.
W. H. Venning, St. John, N. B.

* This State has never made an appropriation for fish culture.

William Wakeman, Gaspé Basin, P. Q.
 J. H. Duvar, Alberton, P. E. I.
 Thomas Mowat, New Westminster, B. C.
 Alexander McQueen, Winnipeg, Man.

Officers in Charge of Fish Breeding Establishments.

S. Wilmot, superintendent of fish culture, Newcastle, Ont.
 Charles Wilmot, officer in charge, Newcastle Hatchery, Ont.
 William Parker, Sandwich, Ont.
 L. N. Catellier, Tadoussac, P. Q.
 Philip Vibert, Gaspé, P. Q.
 A. H. Moore, Magog, P. Q.
 Alexander Mowat, Ristigouche, Matapedia, P. Q.
 A. B. Wilmot, Bedford, N. S.
 C. A. Farquharson, Sidney, N. S.
 Isaac Sheasgreen, Miramichi, N. B.
 Charles McCluskey, St. John River, Grand Falls, N. B.
 Henry Clark, Dunk River, P. E. I.
 Thomas Mowat, B. C. Hatchery, New Westminster, B. C.

CALIFORNIA.

Joseph Routier, Sacramento.
 J. D. Harvey, Los Angeles.
 Commissioner T. J. Sherwood resigned March 15, 1888.

COLORADO.

G. F. Whitehead, Denver.

CONNECTICUT.*

Dr. William M. Hudson, Hartford.
 Robert G. Pike, Middletown.
 James A. Bill, Lyme.

DELAWARE.

Charles Schubert, Odessa.

GEORGIA.

J. H. Henderson, Atlanta.

Superintendent.

Dr. H. H. Cary, La Grange.

* This State has no official superintendent, most of the hatching being done by Henry J. Fenton, Poquonnock.

ILLINOIS.

N. K. Bairbank, president, Chicago.

S. P. Bartlett, secretary, Quincy.

George Breuning, Centralia.

INDIANA.

W. T. Dennis, Richmond.

IOWA.

E. D. Carlton, Spirit Lake.

Superintendent.

Ole Bjorenson.

KANSAS.

S. Fee, Wamego.

KENTUCKY.

William Griffith, president, Louisville.

P. H. Darby, Princeton.

John B. Walker, Madisonville.

Hon. C. J. Walton, Mumfordsville.

Hon. John A. Steele, Midway.

W. C. Price, Danville.

Hon. J. M. Chambers, Independence.

A. H. Goble, Catlettsburg.

J. H. Mallory, Bowling Green.

MAINE.

E. M. Stilwell, Bangor.

Henry O. Stanley, Dixfield.

B. W. Counce, sea and shore fisheries, Thomaston.

MARYLAND.

Dr. E. W. Humphries, Salisbury.

G. W. Delawder, Oakland.

MASSACHUSETTS.

E. A. Brackett, Winchester.

E. W. Putnam, Cambridge.

E. H. Lathrop, Springfield.

MICHIGAN.

John H. Bissell, Detroit. Term expires January 1, 1889.

Herschel Whitaker, Detroit. Term expires January 1, 1891.

Joel C. Parker, M. D., Grand Rapids. Term expires January 1, 1893.

Walter D. Marks, superintendent, Paris.

George D. Mussey, secretary, Detroit.

William A. Butler, Jr., treasurer, Detroit.

MINNESOTA.

William Bird, Fairmount.

Niles Carpenter, Rushford.

Robert Ormsby Sweeney, president, St. Paul.

S. S. Watkins, superintendent, Willow Brook, St. Paul.

MISSOURI.

H. M. Garlichs, chairman, St. Joseph.

J. L. Smith, Jefferson City.

H. C. West, St. Louis.

A. P. Campbell, secretary, St. Joseph.

Superintendents.

Philip Kopplin, Jr., St. Louis.

Elias Cottrill, St. Joseph.

NEBRASKA.

William L. May, Fremont.

R. R. Livingston, Plattsmouth.

B. E. B. Kennedy, Omaha.

Superintendent.

M. E. O'Brien, South Bend.

NEVADA.

W. M. Cary, Carson City.

NEW HAMPSHIRE.

George W. Riddle, Manchester.

Elliott B. Hodge, Plymouth.

John H. Kimball, Marlborough.

Superintendent of Plymouth and Sunapee Hatcheries.

Com. E. B. Hodge, Plymouth.

NEW JERSEY.

William Wright, Newark.

Frank M. Ward, Newton.

J. R. Elkinton, Pennsgrove.

NEW YORK.

E. G. Blackford, president, New York.
Gen. R. U. Sherman, New Hartford.
William H. Bowman, Rochester.
A. S. Joline, Tottenville.
Henry Burden, Troy.

Secretary.

E. P. Doyle, Room 311, Potter Building, New York City.

Superintendents.

Fred Mather, Cold Spring Harbor.
Monroe A. Green, Caledonia.
James H. Marks, Bloomingdale.
E. L. Marks, Fulton Chain.
E. F. Boehm, Mill Creek.

Shellfish Commission.

E. G. Blackford, commissioner, 80 Fulton Market, New York.
William G. Ford, engineer, 80 Fulton Market, New York.
J. W. Merserau, oyster protector, 80 Fulton Market, New York.

NORTH CAROLINA.

William J. Griffin, chairman, Elizabeth City.
J. B. Watson, Englehard.
William T. Caho, Bayboro.

OHIO.

C. V. Osborn, president, Dayton.
A. C. Williams, secretary, Chagrin Falls.
J. C. Hoffer, Bellaire.
John H. Law, Cincinnati.
Hon. Emory D. Potter, Toledo.

Superintendent.

Henry Douglass, Sandusky.

Chief Warden.

L. K. Buntain, Dayton.

OREGON.

F. C. Reed, president, Clackamas.
E. P. Thompson, Portland.
R. C. Campbell, Ranier.

(Terms expire in February, 1889.)

PENNSYLVANIA.

Henry C. Ford, president, 524 Walnut street, Philadelphia.
James V. Long, corresponding secretary, 75 Fifth avenue, Pittsburg.
H. C. Demuth, secretary of board, Lancaster.
S. B. Stilwell, Scranton.
A. S. Dickson, Meadville.
W. L. Powell, treasurer, Harrisburg.

Superintendents.

John P. Creveling, Allentown.
William Buller, Corry.

RHODE ISLAND.

John H. Barden, president, Rockland.
Henry T. Root, treasurer, Providence.
William P. Morton, secretary, Johnston.

SOUTH CAROLINA.

Hon. A. P. Butler, Columbia.

TENNESSEE.

W. W. McDowell, Memphis.
H. H. Sneed, Chattanooga.
Edward D. Hicks, Nashville.

UTAH.

A. Milton Musser, Salt Lake City.

VERMONT.

Herbert Brainard, St. Albans.
F. H. Atherton, Waterbury.

VIRGINIA.

Dr. J. T. Wilkins, Bridgetown.

WEST VIRGINIA.

C. S. White, president, Romney.
F. J. Baxter, treasurer, Sutton.
James H. Miller, secretary, Hinton.

WISCONSIN.

The Governor, *ex officio*.
Philo Dunning, president, Madison.

C. L. Valentine, secretary and treasurer, Janesville.

Mark Douglas, Melrose.

A. V. H. Carpenter, Milwaukee.

Calvert Spensley, Mineral Point.

E. S. Miner, Sturgeon Bay.

Superintendent.

James Nevin, Madison.

WYOMING TERRITORY.

Louis Miller, Laramie.



NEW HAMPSHIRE AGRICULTURE.

EIGHTEENTH

ANNUAL REPORT

OF THE

BOARD OF AGRICULTURE

FROM

MAY 1, 1888, TO MAY 1, 1889.

By N. J. BACHELDER, Secretary.

MANCHESTER :

JOHN B. CLARKE, PUBLIC PRINTER.

1889.

BOARD OF AGRICULTURE.

Organized August 23, 1870.

MEMBERS.

MOSES HUMPHREY, <i>President</i>	.	.	.	.	Concord.
G. S. PHILBRICK, <i>Vice-President</i>	Tilton.
CHARLES MCDANIEL	Springfield.
J. S. PERRY	Rindge.
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S. B. WHITTEMORE	Colebrook.
J. D. LYMAN	Exeter.
ALONZO TOWLE	Freedom.
C. E. SWASEY	Bethlehem.
G. A. WASON	.	.	.	.	New Boston.

N. J. BACHELDER, *Secretary*.

GENERAL REPORT.

AGRICULTURAL ROOMS,
CONCORD, N. H., May 1, 1889.

To His Excellency the Governor :

The eighteenth annual report of the State Board of Agriculture, from May 1, 1888, to May 1, 1889, is herewith submitted.

The most complete returns at our command in regard to the present condition of New Hampshire agriculture indicate advancement during the year, and we express the opinion that the progress made compares favorably with that of other industries in the State. According to the report of the State Board of Equalization for 1888, there are in the State 61,489 horses, 24,649 oxen, 99,511 cows, 53,346 other cattle, and 153,768 sheep, — a net gain from the report of the previous year of 2,204 horses, 2,230 oxen, 5,182 cows, 5,870 other cattle, and a loss of 1,917 sheep. The increased value of the live stock is \$641,241. We have been favored with remarkable immunity from disease among farm animals, no serious contagion having appeared, and but few cases of any kind having come to the attention of the Board of Cattle Commissioners. The report of the commissioners in regard to those cases and other matters of interest will be found in this volume.

We are again able to report a year favored with copious rain, producing a remarkable growth of grass, affording excellent pasturage throughout the season, and an abundant hay crop was secured in fine condition. Lateness of the time of planting and the severe frost of September 6 reduced the corn crop far below the average yield of the State, and in many instances caused an entire failure. Potatoes yielded fairly well, and the fruit crop was abundant.

Dairying continues a prominent farm industry and dairy products are increasing. Nine creameries have been established during the year, and with those already in operation have manufactured 1,000,000 pounds of butter, returning to the farmers therefor about twenty-two cents per pound, or more than \$220,000. This is an increase of 400,000 pounds of butter over the product of creameries in the previous year. The absence of statistics prevents a report of the increase in private dairy products.

Another feature of our agriculture that is receiving marked attention and bringing good results is the breeding of superior horses. Indications of the progress made in this direction are plainly evident, and the efforts of our intelligent and skillful breeders are meeting with profitable returns.

Market gardening on farms favorably located yields a satisfactory profit when judiciously managed, and a large amount of market garden products now purchased outside should be grown within our State. With the exception of those farms adapted only to the growth of wood and lumber, there is not a farm in New Hampshire on which dairying, horse breeding, or market gardening cannot be made to yield a reasonable profit.

The demand for institutes has exceeded that of any previous year, and there is reason to believe there exists an increased interest in the study and investigation of agricultural subjects. The institutes have been well attended, and a larger number could be profitably held.

The Agricultural College and Experiment Station are rendering valuable service, and the advantages offered should be known and appreciated by the farmers of the State.

The Grange has continued its vigorous work, and during the year has extended its benefits and influence. There are in the State 108 Subordinate Granges, with a membership of 7,500, having made a net gain in membership of about 1,000 during the year.

The State Dairyman's Association and other agricultural organizations have been actively interested in promoting the agricultural interests. Twenty-one agricultural fairs have been held, with the usual degree of success. The gratifying improvement in the condition of New Hampshire agriculture which we are able

to report is due in no small degree to the earnest and harmonious action of our various agricultural organizations.

The work of the Board has been extended during the year in various directions. The oleomargarine law has been enforced in all instances where evidence of its violation has been brought to our attention. A system of fertilizer inspection and analysis has been inaugurated and carried into effect, agreeable to the law of the State. Statistics have been collected in regard to leading agricultural interests, and a continuance of this work, with additional inquiries, will indicate from year to year the status and relative productiveness of New Hampshire farms.

Notwithstanding the encouraging features briefly mentioned in this report, it is a deplorable and universally admitted fact that there are many farms in our State, the soil of which would liberally respond to good husbandry, which are yet entirely neglected, and in many instances the former occupants and owners, seeking employment in manufacturing villages or cities, have left their farms, increasing the number of deserted homesteads. On many of these farms are convenient and comfortable buildings. There is no doubt that these places offer equal, and in many instances far superior, advantages, for the price at which they can be purchased, to those that can be found in any section of the country. We believe it would be the part of wisdom for the Legislature to enact a law by which the inducements offered by the abandoned, neglected, and uncultivated farms can be brought to the attention of the vast number of industrious and thrifty people annually coming to this country to purchase land on which to expend their labor and provide homes for themselves and families. We believe such a measure, well carried into effect, would result in the repopulation of many deserted sections of New Hampshire, increase the agricultural productions, adding very materially to the resources and prosperity of our State, and increase our producing population with respected and worthy citizens.

N. J. BACHELDER,

Secretary State Board of Agriculture.

MEETINGS OF THE BOARD.

MEETINGS OF THE BOARD.

ANNUAL FIELD-MEETING AT HAMPTON.

The third annual field-meeting in connection with the annual meeting of the Board was held at Boar's Head, Hampton, Tuesday, August 28, and equaled in interest and attendance any previously held. A majority of the Board, including the president and secretary, arrived Monday evening, when an informal conference was held in regard to the time and place of holding the winter series of institutes, and in regard to the subjects of papers to be presented. All action upon these matters was deferred until the business meeting in Concord on the 30th.

Tuesday opened with fine weather. The pavilion in which the meeting was to be held was pitched at an early hour, and people began to arrive from the neighboring towns and continued to do so until 11 o'clock, the hour of the meeting. Among those in attendance, besides members of the Board, were His Excellency Gov. C. H. Sawyer, Hon. Wm. R. Sessions, secretary Massachusetts Board of Agriculture, Prof. G. H. Whitcher, director of the New Hampshire Experiment Station, Hon. Joseph B. Walker, of Concord, Hon. Warren Brown, of Hampton Falls, Prof. C. H. Pettee, of the Agricultural College, J. L. Gerrish, of Webster, and representatives of various newspapers.

At 11 o'clock the meeting was called to order by President Humphrey, who spoke in a general way of agricultural interests, referring to the Experiment Station at Hanover, and of his interest in it, as a help to the cause of agriculture. The subject of "Experiment Stations" had been announced for the forenoon session, and Hon. Warren Brown, president of the board of control of the New Hampshire Experiment Station, was the first

speaker. He commenced by referring to the work of establishing the station, and gave in an interesting manner a general outline of the investigation being carried on. He predicted much advantage to the farming interest of the State from the station, and urged farmers to become interested in the work there being done.

Director Whitcher was then introduced, and for an hour discussed the work of experiment stations, selecting those subjects considered most important. Work in the field and feeding-barn of the station was considered of great importance, but laboratory work was necessary in connection with the same. These tests should prove each other. Dairying was considered of importance, second only to that of fertilizers, as it involved the intricate questions of breed and feed. Numerous questions from the audience at the close of the address occupied the remainder of the session.

The crowd had increased during the meeting, and the house and employes were kept busy during the dinner hour in feeding the large number. Many had provided themselves with lunch baskets, and in all parts of the spacious grounds were assembled picnic parties, each enjoying the fine scenery and bracing air of this, one of New Hampshire's most beautiful spots.

At 2 o'clock the afternoon session was called to order by the president, but the pavilion only seated a fraction of the hearers, several hundred in number. After brief remarks by the president, Governor Sawyer was introduced and greeted with applause. He spoke in a pleasant way of the growing interest he had for rural life as he advanced in years and experience, and could say this honestly. He found that in agriculture there was much to be learned, and extended words of encouragement to all who were laboring to bring about more agricultural knowledge. He asked to be excused from speaking at length, as he had come to the meeting to listen.

The subject announced for the afternoon session was "Agricultural Science," and Dr. Peter Collier, director of the New York Experiment Station, was expected to give the leading address. A telegram received by the secretary announced his inability to be present, and Hon. Joseph B. Walker, of Concord, was introduced in his place.

Mr. Walker commenced by saying that he was born and had always lived on a farm. The subject of agricultural science was a little dry, but we must grapple with it. Science is a little word, and means knowledge. Agricultural science means agricultural knowledge. The successful farmer must have agricultural science. Would lay down this proposition: The most scientific agriculture is the most profitable agriculture. We do not farm simply for pleasure, but as a business, but the easier we raise a ton of hay the more profitable it is. We find that nature, or the Supreme Being, has laid down certain laws that must be recognized. Success is entirely in accordance with our knowledge of certain laws. The more familiar we are with the laws of nature, the better will we be able to calculate upon results. Agricultural science has aided in the manufacture of farm implements. The first plow made was a wooden plow, and the first cast-iron plow was pulled by eight oxen and driven by three men. Compare these rude implements with the finely made and adjusted plows of to-day, and the result of agricultural science will be seen. By the aid of agricultural science the fertilizers used upon our farms are analyzed, and the parts of which they are made are known. In many ways does agricultural science benefit the farmer, and its vastness is something wonderful to contemplate.

Before closing his remarks Mr. Walker introduced the following resolution, which was adopted:

Resolved, That the farmers of New Hampshire present hail with great satisfaction the establishment in this State, by the general government, of a station of agricultural experimentation, whose corner stone we have recently laid with appropriate ceremonies by the Patrons of Husbandry; and that from the united efforts of this institution, and its neighbor, the Agricultural College, important advances in agricultural science may be confidently expected.

Following Mr. Walker's address, Secretary William R. Sessions, of the Massachusetts State Board of Agriculture, was introduced, and commenced by saying that he was a practical farmer, and as practical farmers had to get a living from their farms and educate their children, they could hardly be expected to have very much time in which to study science, and ascertain those facts and that knowledge which had been referred to by the gentleman who had spoken before him. He knew that ascertained

knowledge had given the farmer much better and cheaper tools than those of a generation ago. Dairying also had been revolutionized by the same acquired knowledge. He had great hopes for the agricultural colleges as educators of the present generation, although they have, until lately, hardly come up to our expectations. At Amherst there had been one in progress for more than twenty years, and he was glad that its trustees and faculty were now in sympathy with the farmers of Massachusetts. These colleges give a practical course of instruction, and it is their aim to get the expense of such a course within the means of every one. Massachusetts farmers have now got almost everything that they want, except the labor fund, and they are hoping to have that. The course of the Massachusetts Legislature has been liberal, and now it will grant anything for which the farmers can make out a case.

The knowledge which can be used practically is what this age demands, as the masses are not benefited directly by the classical colleges. It is a great thing, he said, that the general government stepped in at the right time, and men of foresight so generously provided in the Hatch bill that every State shared alike; New Hampshire, and little Rhode Island even, sharing equally with the largest States in the Union. It is to be hoped that these stations, working harmoniously together, as they doubtless will to some extent, may present an aggregate of proved facts in agriculture that we can pin our faith to, although it has so often been said that one experiment proves nothing. This will be a great thing for the agriculture of the country. As it is now, one authority states one thing and another something different, so that a farmer who reads the whole would be filled with uncertainty. For instance, one will state that cattle will do 25 per cent better if the feed is steamed; another, that 25 per cent could be added by warming the water; and so on. If all this is true we might soon get a good product!

We should be patient and wait, but no doubt in time agricultural science will be so developed that every farmer and American citizen will be benefited; and who is higher than the American citizen? There is no reason why the government should not be liberal to the farmers, as they have always paid more than their

share of the taxes, and in time of peril they know where the farmer is to be found.

Brief addresses were made by Charles McDaniel, of Springfield, master of the State Grange; Hon. Joseph Kidder, of Manchester; Mr. Eaton, of Lawrence, Mass., and others. This closed the very interesting and profitable meeting. Col. S. H. Dumas, proprietor of the Boar's Head House, was untiring in his efforts for the comfort and enjoyment of the large audience assembled. By his thoughtful courtesy, Mechanics' Band, of Hampton, was stationed on the veranda, and at frequent intervals during the day enlivened the occasion with fine selections. A vote of thanks was tendered Col. Dumas and the speakers, after which the meeting adjourned.

ANNUAL MEETING AT CONCORD.

The Board met at the office of the secretary, in Concord, Wednesday, August 30, 1888, being the date provided by the by-laws for the annual meeting. Present: Messrs. Humphrey, Mason, Philbrick, Whittemore, and Thompson. Hon. Moses Humphrey was unanimously re-elected president. Mr. Mason declined a re-election as vice-president, and G. S. Philbrick was unanimously elected. N. J. Bachelder was unanimously re-elected secretary.

The following resolution was presented and adopted:

Resolved, That the State Board of Agriculture express in this meeting their pleasure at the general appearance of the first annual report of the Board compiled by Secretary N. J. Bachelder, and their approval of the subject matter contained therein.

The law of the State passed at the session of the Legislature in 1885, regulating the sale of imitation butter, was read, and on motion the secretary was authorized to send a copy of the law to all dealers in imitation butter in the State, stating that the Board would require the enforcement of the law for the protection of producers and consumers of honest butter.

The winter series of institutes was considered, but the time and place of holding the same, and subjects to be presented, were referred to the secretary and the member of the Board from the county in which they shall be held.

The Board adjourned.

INSTITUTES.

INSTITUTES.

COÖS COUNTY.

LANCASTER.

The first institute of the winter was held at Grange Hall, Lancaster, Wednesday, November 21, there being present as representatives of the Board, Mr. Philbrick, of Belknap county, Mr. Swasey, of Grafton county, Mr. Whittemore, of Coös county, J. L. Gerrish, of Webster, and the secretary.

Considering the severity of the weather and the condition of the roads, the number of farmers in attendance was quite satisfactory, the evening session particularly being well attended; a fair proportion of ladies and young people were also present. Mr. Whittemore presided, and the subject of sheep husbandry was first taken up, the leading talk being made by Mr. Gerrish. The speaker referred to the origin of the various breeds of sheep, and described the most profitable sheep to breed in Northern New Hampshire, speaking in detail of the methods of feeding and handling. Many questions were asked Mr. Gerrish at the close, and further remarks made by Messrs. Philbrick, Way, Weeks, Hibbard, and the chairman. The difficulties in the way of successful sheep husbandry were considered, and the session was one of much interest.

Before the close of the afternoon session the secretary made some remarks on the subject of dairying, and the subject was continued at the evening session. The secretary spoke of the importance and profitableness of the subject, and the increase in the amount of associated and private dairying in the State. The Experiment Station at Hanover was referred to, and the

investigations being made there in the interest of dairying. The advantages of the special over the general-purpose cow were considered. Methods of butter-making were considered at some length, and the oleomargarine law of the State quoted.

Mr. Philbrick continued the subject of dairy feeds, speaking particularly of milk production, incidentally giving an account of his silo and how he had reduced the cost of production and increased the quantity. To know how to feed each individual cow according to her capacity was better than all the theories in the world. He spoke for something more than an hour, holding the audience closely throughout.

JEFFERSON.

An institute was held at Jefferson on the following day, at which the speakers and subjects were the same as at Lancaster, except that Mr. Philbrick confined himself more particularly to ensilage. The day was exceedingly cold, but the representatives of the Board found warm hospitality and a hearty reception, and were pleased with the interest manifested in the meeting.

BELKNAP COUNTY.

NEW HAMPTON.

Only one institute was held in Belknap county, and that at New Hampton, Friday, December 4.

This meeting, which was not large, on account of the extreme severity of the weather, was a very enthusiastic one. Belknap county has been very unfortunate in selecting the day for meetings of the Board for several years, and this one was no exception, the thermometer ranging from five degrees below to ten above through the day and evening, with wind, clouds, and squalls.

County Member Philbrick called the afternoon session to order with suitable introductory remarks. He said that the object of the Board was, primarily, to awaken thought and discussion, not to give positive instruction, as very little of absolute

fact had, so far, been settled in agricultural science. He also directed a few words to students of the institution, of whom there were a fair number in attendance, both at the afternoon and evening sessions. The deportment of the boys and girls, largely from farmers' families, was pleasing to representatives of the Board, and spoke well for the discipline and influence of the faculty.

At the close of Mr. Philbrick's remarks he introduced J. L. Gerrish, of Webster, who was kept on the floor for nearly an hour, about half of which was spent in answering questions growing out of the subject. This talk was confined wholly to the apple, treating mainly of raising trees on the farm instead of purchasing from the nursery, and especially from traveling salesmen, who are not always reliable.

Mr. Gerrish illustrated different methods of grafting, and also spoke of giving the proper shape and direction to seedling stock, preparatory to limb-grafting. He recommended this method, and claimed that one good reason for it was that it gave a vigorous and healthy seedling, acclimated stock for the foundation of the tree. If this method was followed, one could graft such varieties as the market demanded only from four to six years before the fruitfulness of the tree, whereas a budded tree must be started ten or fifteen years before fruiting. It was not probable that the public taste would be diverted from the Baldwin, now so leading, in so short a time as ten years, yet in these times of change it was not impossible. Samples of stock were shown representing his method of pruning.

Mr. J. R. Pike inquired whether the speaker would rather have a slanting cut where only one cion was used in grafting.

ANSWER : It would shed rain better and make a better healing of the wound.

Mr. M. H. MERROW : How would you treat dried-up nursery stock ?

ANSWER : If accepted, I would bury them in moist soil forty-eight hours, or till they became plump and active at the bud.

QUESTION : How about borers ?

ANSWER : The borers attack soft wood, like forced stock, as it is soft ; whereas seedling stocks are usually hard. If not dis-

covered until the handful of "chips" is seen about the roots, the work of the enemy is already accomplished, and he has emerged from the holes in another form. By looking carefully near the ground the borer may be found earlier, as he shows a little colored blotch in the bark, with a drop of sour sap exuding. One is then in season to remove the pest with a knife.

Inquiries were made concerning grafting wax. Linseed oil was thought better than animal oils. If pitch was used instead of resin, less grease was needed. Lard was poison to the bark. Mr. Merrow said he made a wax with six parts No. 1 resin, two parts beeswax, one of tallow, and a pint of pine pitch. This discussion occupied nearly all the afternoon.

The evening session was quite well attended in spite of the cold. The secretary spoke of his former connection with the school as a student. He also spoke in a general way concerning our agricultural interests, saying that he was glad they were not on the decline. He spoke of the increase of the dairy interest, and said it was possible, and a duty, to make further advances. He doubted if the average cow in the State made annually two hundred pounds of butter. He spoke of different feeds, and referred to the Vermont Experiment Station's feed formulas. Grass was a perfect feed. It was one part of albuminoids and five and four-tenths carbo-hydrates. Foods might be made on this basis for dairy cows. One was two pounds linseed, four of bran, five of hay, and sixty of ensilage; another, four pounds of corn meal and sixty of clover ensilage.

Questions followed for some time by various gentlemen present.

Mr. Sweatt, of Bristol, made a few general remarks on dairying at this point, and there was some further colloquy, after which Mr. Philbrick spoke vigorously and at considerable length on ensilage and milk. Mr. Philbrick preferred a good cow, without naming any breed. Continuous thought in one direction molded the character of a man, and the same was true with the feeding or breeding of cattle. When feeding, each cow was a problem. He also addressed a few fitting words to the students in attendance. He said: "The world owes no one a living," but these boys must remember that every one owed the world a life of

service. It is not for want of opportunity, he said, that we do so little, as he knew of a man who raised enough on four acres to winter fourteen head of cattle by buying grain, and the milk paid for the grain, and he also paid over \$400 on his farm mortgage in the same time.

After a few remarks by Mr. Gerrish and a few thoughts in the same line — “Improved Stock” — by Mr. Merrow, the meeting was reluctantly closed on account of the lateness of the hour.

MERRIMACK COUNTY.

HENNIKER.

An institute was advertised at Henniker, Thursday, December 27, and in one of the severest storms of the season President Humphrey, Dr. Towle, of Freedom, Hon. J. B. Walker, of Concord, and the secretary were there agreeable to appointment. The severity of the weather, however, prevented an attendance in sufficient number to hold the meeting. After an informal talk, and an inspection of the fine herd of cattle on the farm of Mr. H. A. Rice, the representatives of the Board, postponing the institute until a future time, returned to Concord.

LOUDON.

On the following day, Friday, December 28, an institute was held at Loudon, President Humphrey, Dr. Towle, and the secretary being in attendance. The afternoon session was opened by the president of the Board in a general discussion of the agricultural interests of the State, followed with practical and instructive remarks on the culture of corn. Results of years of experimentation were given, and the growth and best methods of culture of the corn crop were explained in detail. Mr. George L. Pierce was present, and spoke interestingly of the importance of investigation in agricultural subjects, and gave facts and figures in relation to the profitableness of dairying.

The evening session was opened by Dr. Towle, of Freedom, upon “Economical Feeding.” His paper was given close

attention and will appear elsewhere in this report. Its presentation was followed by numerous questions from the audience which met with prompt and satisfactory answers. The secretary spoke upon the subject of dairying, mainly in reference to the care and handling of dairy stock. President Humphrey made brief remarks upon "Habits of Industry," closing a well-attended and satisfactory session.

GRAFTON COUNTY.

HANOVER.

A three days' institute under the direction of the State Board of Agriculture, Experiment Station, and State Dairyman's Association was held at Hanover, January 8, 9, and 10. The sessions were held in Culver Hall and well attended throughout. A test of dairy implements was carried on at the same time in the new Experiment Station building, and aided in attracting leading dairymen from New Hampshire, Vermont, Massachusetts, and Connecticut. The first session was held on the evening of the 8th, about one hundred people being present at the opening exercises. J. M. Connor, of Hopkinton, president of the State Dairyman's Association, presided, and the first speaker was H. F. Hoyt, Jr., of Hanover, who read a paper upon "Does Farming Pay?" The affirmative of the question was well sustained by the essayist, who urged the adoption of the silo and the practice of dairying. He was followed by President Connor, Hon. Moses Humphrey, of Concord, president of the State Board of Agriculture, Messrs. Currier, Bridgeman, Huntington, and Moore, of Hanover, Thompson, of Durham, Waterhouse, of Strafford, Towle, of Freedom, and Sawyer, of Webster. The general idea advanced was that farming paid as well as any business when conducted in as intelligent and economical manner. The discussion was continued with interest until a late hour.

Wednesday, January 9, was the day on which the exercises were conducted by the Board of Agriculture. Hon. Moses Humphrey, of Concord, president of the Board, presided, and on calling the meeting to order spoke as follows:

OPENING ADDRESS BY HON. MOSES HUMPHREY.

Ladies and Gentlemen :

In presenting the subject of agriculture, some may say, "It is the same old story you have ; you bring nothing new." It might be said the same of the gospel, as presented to us every Sunday by our minister, but still there is a necessity of repeating it over and over, in its various aspects, so as to bring it to our knowledge and understanding, that we may be benefited by the same. In commencing this meeting here in Hanover, it gives me pleasure to meet so many of your intelligent farmers and citizens. It is quite a contrast to the meeting which the Board held here some years ago. Then there were but few people at the meeting. At that time the Agricultural College had just commenced its work, and the Board were little known among the farmers. Now, after eighteen years' work in holding meetings in different parts of the State, we feel somewhat gratified with the work of the past years, believing, as we do, that we have accomplished something in bringing the great subject of agriculture in all its various branches to the attention of the intelligent farming communities. I believe that it requires great skill and a commendable application of talent to be a successful farmer ; that is, in a business sense. Still there are many good farmers all over the State who get a good living at this branch of industry ; better than they could in any other direction.

During the eighteen years' work of the Board there has been a step forward, and improvements have been made in the right direction. Consider the improvement in stock. At that time a large number of our farmers hardly knew the great difference between the different breeds ; between the best milking breeds of cows ; the same as to cattle for oxen, for beef, or for work ; again the same as to horses, which were the best breeds or the most profitable to raise ; also in regard to sheep, how to raise and to handle them. Then there is poultry. See the improvements in the breeds. Some farmers make it pay well, and some make it their whole business and it pays well to those that understand it. Then there is great improvement in agricultural machinery for

handling crops. Some fifteen or eighteen years ago it was generally thought that corn could not be raised at a profit in the State. Now how is it with machinery? We have it as a good paying crop. Any intelligent farmer can raise it for thirty-three to forty cents per bushel, and at that price we all know it pays well. Again, if we raise it on our farms we keep our money at home instead of paying it out for Western corn. In this connection I might speak of the silo, one of the greatest improvements of the age for the farmers. It is just what New Hampshire wants to build up her waste places or farms and make them valuable homes for the young people, so they may find inducements to stay here in the State and improve the farms. These make the most valuable citizens of the country.

Look at the great improvement in the dairy. It is now conducted on scientific principles. Instead of the old slipshod way, now, by the use of machinery in the creameries, and the kind which is adapted for hand labor on the farm, it has taken substantially all the hard labor of the dairy in the house from the women and transferred it to the men. Then look at the quality and price compared with eighteen years ago. This branch of farming is increasing very fast in the State because it is made profitable by the improvements of the past years.

The Grange has come into existence in the last few years and is doing grand good work in the State. In my opinion it is among the best elements that we have working with us at this time for improvement of our citizens and farmers in all agricultural work; also in our social aspects, for it brings together the more isolated parts of the town and makes society more congenial and to work in harmony in all good work for the benefit of the human family.

As we have met for business and improvement we will now commence the exercises of the day. I have the pleasure of introducing Dr. Alonzo Towle, of Freedom, member of the Board from Carroll county, who will speak to you upon "Feeding for Beef."

FEEDING FOR BEEF.

BY ALONZO TOWLE, M. D., OF FREEDOM.

Whether feeding for beef is a business suitable to New Hampshire farmers with many is an unsettled question. If we visit those sections of our State where raising and selling cattle has been the chief agricultural enterprise, the number of farms mortgaged, for sale, or forsaken, is a strong evidence that such business has not been paying. If we would make it pay, we must do so by practicing better economy, and that economy must be either in the animal we feed or in our method of feeding. I would not attempt to discuss the one without mentioning the other.

God forbid that I should lend any encouragement to my fellow farmers to feed for beef the degenerated steer, handed down to us by hap-hazard breeding, with no purpose in view, and known to-day as our native blood. Neither would I advocate the blooded steer, whose nature requires from four to six years to mature, whatever size he may acquire. But I would select a steer whose nature it is to carry a large amount of muscle and fat, whose constitution is hardy, whose disposition is quiet, whose digestive and assimilative powers excel, and whose nature is early maturity. To raise such a steer for beef, feeding for beef should begin the day he is dropped and continue until he reaches the butcher's hands. How to select this food with economy is a subject for us to discuss to-day.

If nature had given us only one specie of animal, and had provided only one food whereby it should be nourished, and that food complete, and its supply inexhaustible, economy in feeding would not be a subject for discussion. Instead, we are provided with the horse, the ox, the cow, the sheep, the swine, the hen, as different species under our control, and we have all the combinations of the vegetable kingdom to feed them upon. More than this, each specie may serve us in different capacities, and like all other machinery, whether they serve us well or ill depends largely upon how we apply the motive power, which to the animal is food. Again, the food at our disposal varies largely in its analy-

sis ; some rich in one thing, some in another ; some adapted to one purpose, some to another ; but these different foods, however incomplete, do not come to us spontaneously, but all at a greater or less expense. Hence in feeding we are not only required to select a special food, to be fed to a special animal, for a special purpose, but economy requires us to select that food at the least possible cost. So far as my observation goes the average farmer, in omitting these points, has not kept pace with the progress of time.

Our Legislature, recognizing our fallen condition, has come to our aid with the Agricultural College, the Experiment Station, and the State Board of Agriculture. The inventor within the last thirty years has given us the iron plow, improved harrows, wheel horse rake, hay tedder, manure spreader, sulky plow, universal weeder, and many other improved farming implements, either of which we should consider almost indispensable to the farmer. The creamery, cheese factory, corn factory, apple factory, poultry house, silo, are only names given to ideas of recent birth. The chemist from his laboratory tells us the analysis of different foods, what is necessary to sustain life, what will promote growth, what produce butter, what eggs, and what fat, — ideas which never entered the brain of our fathers. But with all these additional means at our disposal, that we may the more easily raise and store our crops, I will leave it with you to say how much improvement during this time has been made in feeding the steer.

The average farmer cleaves to his parental ideas, and feeds out his winter's supply alike to his mixed herd, equally surprised if this one gains or that one loses. He does not feed grain, because he cannot afford to buy it, and he will not raise it, because he can buy it cheaper. His animals are simply machines for converting crops into fertilizers. Instead of keeping a few at a profit he keeps many at a loss. It seems to me, gentlemen, whatever our calling in life, we should always be ready to lift a hand against this ruinous practice. With the means at our command, better things are expected of us than simply to follow the footsteps of our fathers. Economy in feeding is the great study of to-day, and if we do not contribute our individual support to

its solution, reproach will fall upon our own heads. I shall not attempt to convince you of my ability to discuss this matter in full, but I tender you my limited ideas, not with a spirit of antagonism, but with a desire to profit, and I ask as much from you. There are certain facts given us by scientific research upon which I base my reckoning, and if I rehearse some of them I hope it may not be regarded as vain repetition.

Animal life is supported by food made up of different elements, and these elements must be combined in a certain ratio. To avoid confusion I will classify all food as either albuminoids or carbo-hydrates, supplying to the animal heat, muscular energy, and new tissue. Different food contains these elements in different ratio, so that extremes may be reached by feeding either to excess, according to the elements of its composition. For instance, the ratio of albuminoids to carbo-hydrates in milk is as 1 to 3; timothy hay, 1 to 14; oat straw, 1 to 30; corn meal, 1 to 9.2; wheat bran, 1 to 4; cottonseed meal, 1 to 1.3. No two fed alone will give like results. It has also been ascertained that animals under different circumstances require these elements in different ratio; thus oxen at rest require a food where the albuminoids are in proportion to the carbo-hydrates as 1 to 12; oxen at work, 1 to 6; growing cattle, 1 to 6; cattle fattening, 1 to 5.5; cows giving milk, 1 to 5.4. Hence a ration suitable for an ox at rest is not suitable for the ox at work, and a ration suitable for either would not be suitable for a cow giving milk or for the growing steer. The conclusion is, then, to acquire special results we must apply special means.

Let my special animal be the steer, and my special purpose to sell him for beef, and my special desire to know how I can feed him that the figures of profit and loss may tally on the right side of the balance sheet. Suppose that steer to weigh 800 pounds when he came to the barn in the fall, and we will count the cost for one year by different feeding. Experience has proven that if he be a thrifty, healthy steer, in a warm barn, well cared for, it will require to maintain him, so he will neither gain nor lose, twenty pounds of timothy hay per day, or two and one-tenth tons for seven months, worth at present \$12 per ton, or an expense of \$25.20 for sustenance during the cold months. We

will now give him a good pasture at an expense of \$5 for the season, making the cost of feeding for the twelve months \$30.20. The average gain of such a steer will be 300 pounds, and the cost per pound, live weight, a little over ten cents, and he is sold for four cents a pound or less, live weight. If that man has been in the business a great while, you will find his farm mortgaged. Now if we had given that steer a daily ration of mixed hay, 15 pounds, at \$12 per ton; corn meal, 2 pounds, at \$1.10 per cwt.; and cottonseed meal, 1½ pounds, at \$26 per ton, the cost would have been \$27.61, and any one who has had experience in feeding will not estimate the gain of such a steer less than one pound per day, or 210 pounds for seven months, at a cost of \$2.41 over the cost of maintenance. No steer to be thrifty should be fed to make a less gain than this, and my experience is, that such a steer will gain more pounds at pasture than the one fed just to support nature. We will allow that he gains the same, 300 pounds. Now when the grass season is over my steer will weigh 1,310 pounds. I will now put him into the barn, and feed liberally to fatten; say mixed hay and clover 15 pounds, corn meal 6 pounds, cottonseed meal 3 pounds, wheat bran 3 pounds per day for forty-five days, or 1½ months, at an expense of \$10.12. At this season of the year, with this feed, my steer will take on fat rapidly, say three pounds per day, or 135 pounds for the 1½ months. He will now weigh 1,445 pounds, is prime beef, and is ready for sale.

I will ignore the promiscuous buyer, whose cry is cheap beef and Western competition, and who will try to steal my steer, but rather send him direct to market, where there are always plenty of buyers ready to pay the top price for Eastern-fed steers.

Now for the balance sheet.

BALANCE SHEET. NO. 1.

DR.

CR.

Steer, gross weight 800 lbs., at 4 cts.	\$32.00	Steer, gross weight 1,100 lbs., at 4 cts.	\$44.00
Cost of wintering 7 months.....	25.70	Loss to balance.....	18.70
Cost of pasturing 5 months.....	5.00		
Total expense.....	\$62.70		\$62.70

NO. 11.

DR.

CR.

Steer, gross weight 800 lbs., at 4 cents	\$32.00	Steer, gross weight 1,445 lbs., thirty	
Cost of wintering.....	27.61	per cent shrinkage, dressed weight	
Cost of pasturing 3½ months.....	5.00	1,011½ lbs., at 8 cents.....	\$80.92
Cost of fitting him on grain and			
hay.....	10.12		
Cost of marketing.....	5.00		
Profit to balance.....	1.19		
	<u>\$80.92</u>		<u>\$80.92</u>

My steer has returned me the full market price for all he has eaten, and a profit of \$1.19, and still another item to be added. The fertilizing value of the grain fed, as compared with the present price of commercial fertilizers, is \$8.37, which should be added, making the total profit \$9.56.

I have not calculated to overdraw this picture, and believe that experiment in the hands of careful, interested men will add to rather than take from any figures I have made. But can we not do better than this? Economy in feeding implies cheap production of food, and if we have been extravagant in our feeding ration we should curtail. The hay my steer has eaten is valued on the balance sheet at \$22.95. Good authority tells us we can raise at least sixteen tons of Northern field corn ensilage on an acre, at an expense of \$1.90 per ton, this to cover the interest and taxes on land, the cost of plowing, planting, hoeing, harvesting, and weighting in the silo, and every two and one-half tons of it is equivalent in nutrition to a ton of timothy hay. Hence at an expense of \$9.97 we can furnish a substitute for the hay which we have reckoned \$22.95, — a curtail of \$12.98; this is worth trying.

Again, we have reckoned corn meal \$1.10 per 100 pounds, or 56 cents per bushel; but any of us who cultivate good corn land, and will dispense with the slow ox team, hand hoe, and hired help at two bushels of corn per day, and adopt the use of improved machinery, whose propelling power shall be the horse, can raise corn at a cost not exceeding 30 cents a bushel, — another curtail of \$4.68 in the grain ration of my steer. Now the balance sheet will show us a net profit of \$27.22 on my steer, against a dead loss of \$18.70 by the maintenance feed, the feed of the average farmer.

Now these may look like speculative ideas on paper, but there are certain facts bearing on this subject that we know. We know that last week H. C. Burleigh sold 24 steers in Boston market, averaging 1,100 to 1,400 pounds, dressed weight, at 8 cents per pound, and the same day Mr. Glines was auctioning steers in my own town at 2 cents a pound, live weight. Such is the result of breeding and feeding. Mr. Burleigh sold two-year-old steers for \$176 a pair, and Mr. Glines sold steers of the same age at \$25 a pair; and we have every reason to believe that Mr. Burleigh's steers never cost him over 3 cents a pound, dead weight, while Mr. Glines's cost somebody more than 15 cents a pound, live weight. Again, Mr. Burleigh's steers gained 480 pounds in 7 weeks, which is almost 5 pounds each a day. My highest estimate was 3 pounds per day.

Economy in feeding begins in breeding. Have a purpose and then breed for it. Economy in feeding consists in furnishing warm, dry, and well-ventilated quarters, in exercising care and gentleness, in feeding liberally and for a purpose. Economy in feeding means early maturity. Economy in feeding insures the highest recompense for all we do, and it is the only proper way to fertilize our soil. It is not Western competition that compels the Eastern farmer to sell his beef at ruinously low prices, but rather the grade of beef he has been raising. The point I would urge is that farmers should abandon the damaging idea that feeding grain is a luxury, to be indulged in only by the wealthy; that it is the only economy for the poor man to keep better animals and provide better rations. I do not intend for you to infer that the rations I have selected are the most economical for you. Every man must determine that for himself by considering what his land will produce at the least expense, and also the current price of different feeds compared to their relative nutritive value, but I do intend to show that with the rations I have selected, however extravagant they may be, the steer can be raised for beef in New Hampshire, and that, too, at a profit.

And while I hail with joy the dairyman with his improved cow, and the poultryman with his improved fowl, by breeding and feeding I hope my white-faced steer will also prove an in-

centive to our young boys of thrift and enterprise to remain at home with the people of New Hampshire, and not be obliged to seek other countries for a lucrative business.

QUESTION: I would like to ask the doctor if he has had any experience in ensilage.

Dr. TOWLE: No, sir; I have not. We have put in a silo this year and are now feeding it out; but before this we have never tried the silo. We are firm believers in ensilage, and next year we shall put in more than we have now.

QUESTION: Do you think it would require the same ratio to give the same result with meal fed with ensilage as it would with timothy?

Dr. TOWLE: The idea in ensilage is understood to be the element of the corn. Now, at \$1.10 for meal, as I have reckoned it in my paper, I say that we can raise Northern corn, and when the ears are full of the milk we can cut and put into the silo and feed to our steers, and in that way we can realize the value of our corn at much less expense than we are putting it in now. That is what I propose to carry out hereafter. Instead of putting the corn at full market price, we can raise our own corn at home, and we can save so much of the cost. It has been proven at the Experiment Station that Northern corn can be raised at an expense of \$2.40 a ton and put in the silo. Fifty cents of that expense is for cutting; and consequently I put my own in whole, and feed it out. I think by putting it in whole in that way there is really more nutriment to be got out of corn from the silo, more nutritive yield, than as though the same amount of corn was matured, husked, shelled, and carried to mill and ground, and fed as meal. I am certain that a certain portion of the meal fed to a fattening cow is wasted, and that, where it is put in the silo, it is all there and is saved in connection with the other feed, so that when the cow grinds it up she grinds the whole of it, and it is so mixed with other coarse fodder that when the animal chews his feed that comes up; he gets more nutritive value out of the corn put in the silo than put into meal.

QUESTION: Do you think cottonseed with ensilage works better than corn alone?

Dr. TOWLE: I believe in mixed feed. You understand that the fattening steer needs the proper nutritive ratio. Now, if you feed simply corn meal, it is impossible to get that ratio. Consequently you have to use mixed feed in order to get that ratio which is proven to be the best ratio for feeding the steer.

President HUMPHREY: The subject of feeding which the doctor has brought in, in connection with the steer, is a subject that I have thought a great deal of, although I have experimented but little, that is, not to go into thorough experiments, but this one fact I do know and have observed. You go through any of these towns around here and look at the barns when they have been filled up with the products of the farm and are ready to be fed out, and look and see what stock they feed. I don't know but they have changed a good deal in the last twenty years; I know they have to some extent; but I will take it twenty years ago. Any amount of stock comes to the barn that ought to have been killed before it ever came there, so far as profit was concerned. The stock is put in the barn, no matter whether a creature is a good thrifty one or not, and it is put to work to grind out the stuff that they have put in the barn. Some farmers seem to be delighted to get what they have through the machine and get it into a fertilizer; and that is the great end of farming.

While I lived in Croydon I remember large farmers there who would keep a large stock that in spring came out spring poor, and it would take all the fore part of the season to get the animals started, and so there would be little gain; whereas, if they had taken these machines and put them through as they do fancy horses, fed as they ought to have been fed, and thrown the meadow hay in the brook, the feeding would have amounted to something, so that, instead of their bones sticking out and their hair sticking up, the hair would look glossy and they would begin to grow, and when they came up in the fall they would show what growth they had made, and you would see the benefit of it. That was the case some years ago. People thought if they only had a meadow they could bring up a farm with it. A meadow is all right enough if you have some grain to put with the hay. You may take your meadow grass and feed it to your steer, but if you don't put something with it you had better not have it.

When you get it ground out and passed through the animals what value is it? Put it on the ground and it fertilizes but little. But if you add to that a certain amount of shorts and cottonseed meal it takes but very little to carry them through the winter, and they will come out bright and cheery and look ready to do something in the summer; and the droppings that are left behind have some fertilizing qualities. What you get from the shorts and cottonseed meal amounts to something.

And so, in this matter of feeding, as the doctor said (and I was glad to hear him talk on that subject), I believe we can make money feeding steers, — those of us who have farms adapted to it. Those who have farms adapted to dairying should take dairying, and those who have farms better adapted for raising sheep should raise sheep. I hold that it takes more to be a good farmer than it does to be a professor of this college; to know what soil he has, what to put on it, what it requires and how to apply it to get the best results. He wants to know whether his land is better for raising cows or sheep, or what stock it is best adapted to raising; and he wants to go to work systematically, just as much as a man does in any other business. If he does, I will guarantee that he will make money out of it as well as with other business. He is not going to make it so fast as the speculator makes it, perhaps, but he is making something that is going to stand. For that matter, in ninety-nine out of every one hundred cases of the speculators who undertake to get something out of nothing, in the end they are ten times worse off than if they had staid and worked on the farm. Anybody who has any experience in life knows that the farmer takes the most comfort of any class of people in the world. He not only works his farm, but he has a home. The young man gets married and he starts out for a home. He gets that on the farm, and he gets more out of life than any other class of people that I know of.

I think this is one of the most important subjects to be considered in this State. I am glad to hear the doctor lay it down so strongly as he does in his essay. I think we can all learn something from it.

QUESTION: I would like to ask one question. Perhaps it will not be in place here, but sometime during the meeting it may be.

I have found in feeding for two years back that I could not find any feed so perfect or that would give so good results as sweet corn. I would like to know the relative value of sweet corn and ensilage. I have found that by raising sweet corn and feeding to my milch cows, I get as much milk and better milk than others who feed ensilage.

Dr. TOWLE: I have had very limited experience in feeding sweet corn. From what I have had, I am satisfied that for milk purposes, or even for growing purposes, the same amount of sweet corn is preferable to an equal amount of Northern corn. I cannot repeat what the nutritive value or ratio is, but it is given in the report from this Experiment Station. I think you will find, not only from experiments by chemical analysis, but from your own experience, that sweet corn is not a perfect feed nor an economical feed for milk. It is good as far as it goes, but I think you will come down to the basis sooner or later that, in order to get economical feeding — that is, the best results at least cost, — you must use a mixed feed.

H. F. HOYT, Jr.: I fed sweet corn to cows in the pasture, and I put the same cows on to feed and gave them meal, and I got a larger amount of milk from the cows fed on the corn than I did from the cows fed in the pasture with mixed feed.

J. M. CONNOR: I have been very much interested in the remarks of Dr. Towle, and the manner in which he has met this question of inability to compete in the raising of beef. This I believe is conceded by farmers to be a most difficult problem to meet. Almost everybody has made up his mind that we cannot raise beef at a price to compete with the West; but I think if there is anything that we need to rid the mind of the New Hampshire farmer of, it is this false idea that we are not able to compete with any section of the country, with proper management, in any branch of farming. Now, as evidence of this, you may take the tone of the sentiment among farmers ten or fifteen years ago in relation to New Hampshire's ability to produce butter in competition with Vermont and the West. The farmers talked blue over this matter. They felt blue over it. Almost the universal sentiment was that dairying had gone under; that we could not compete with the superior pasturing in Vermont

and with the West. What is the feeling to-day? What a change to-day from ten or fifteen years ago! See the creameries springing up all over the State. Notice the feeling of encouragement and see the look of satisfaction in the faces of our farmers to-day. See how they feel over this dairy question. Do they talk about competition? Is that thrown up to-day? No. It has an encouraging look. Why? Because we have adopted different methods. It was just so in regard to pork raising, years ago, when they were flooding the country with Western pork. We cannot raise pork here, you would hear people say, in competition with men who are raising corn where the corn is so cheap that they use it for fuel, etc., etc. How is that matter to-day? I say I can raise pork at a good profit in competition with the West. I raised, myself, last season 3,200 pounds of pork, at an expense of seventy bags of meal, which cost about \$85. That pork at its market value was worth \$250, and brought it in the market. Was there profit there or not? It is in the method. My idea was just as I expressed in relation to beef. You commence to fatten a pig, and you push him until it is time to kill; no matter what time of year. When you have fattened him as long as you can at a profit, kill him, and not keep a store pig about your premises squealing for the swill-pail. During that time you could make a good porker of him, whereas he has not grown at all. That is the trouble with the beef business—keeping animals year in and year out, standing still, and making no gain. Now, I say, it is a question of method. It is just so in every branch of farming. I think we have no fears of this competition that has stared us in the face. We have got it instilled into the minds of the young farmers altogether too much, that we cannot feed to advantage in this section of the country. I believe it is all idle talk. I think it can be done.

Mr. NOYES: Do I understand the gentleman to say that he makes \$250 worth of pork from \$80 worth of meal?

Mr. CONNOR: That is in connection with skimmed milk, of course; but you know that it has been said, and any quantity of farmers will tell you, that for years past you could not afford to raise pork and sell it for six cents a pound, on meal, or even seven cents a pound. Well, now, it seems to me that in con-

nection with dairying this is certainly a good outlook ; and that, so far as money is concerned, the pork did not cost over three cents a pound ; that the remainder was derived from skimmed milk. Now I contend from this, that providing you purchase all the material on which you feed the pigs, you can make a good handsome profit.

T. W. BRADDOCK : I would like to inquire of the doctor if he has had any experience in feeding carrots to stock. Now, we raised about 130 bushels of carrots this year off from a small piece of ground. I don't know exactly how much, but a few square rods. We are feeding a portion of the carrots and creamery milk to some pigs ; that is all that they are having, and they are doing nicely on that feed. I would like to inquire of the doctor if he has had any experience in feeding carrots to stock.

Dr. TOWLE : I went on to my farm a few years ago. My only account was my pocket-book. I farmed for two years in that way, and I did not see that my pocket-book grew fatter. I said to my wife one day, "I should like to know where all my money goes." She says, "It goes into that barn." I said it went into the house. We did not quarrel much. I said, "Here, I will know about this thing ; I will keep an account ; I will know where my money goes to ; for I can reckon up very quickly what I sold my cows for." So I kept a debit and credit account, and I found, much to my surprise, that my greatest bill during the year was my bill for hired help. I said, "That has got to be cut down ; and I am going to see if I cannot raise what has the most nutritive value and do it with the least possible help hired." Consequently I have not deviated from certain crops. Roots are all very good for feeding, carrots are all very good for feeding, especially if you give them to cows giving milk, and if farmers are so circumstanced that they can make it profitable by raising roots. With me, on my farm, however, I will raise the most I can with the least possible help hired. I let the animals do the work ; I let the horses do the plowing, and the harrowing, and the planting, and the hoeing, and my horse does the hauling ; but he cannot cut it up.

A MEMBER : Hitch him to the mowing-machine, and he will do it.

Dr. TOWLE: Possibly he might. I have heard it said the scythe will do it. I shall cut at the least possible expense that I can. The result that I have arrived at is that on my farm I cannot make it profitable to hire help to raise roots. It costs a good deal.

President HUMPHREY: One gentleman has raised the question as to Brother Connor's raising his hogs. I would say in this connection that I went into this business pretty thoroughly; and I would say I made it profitable. I think anybody can do it. The worst trouble that I had was that I could not give my personal attention to it. It is like everything else that needs looking after. If you are going to raise hogs, you want the right kind of grain, and they want to be looked after. I am just as well satisfied that we can raise pork, and compete with the West, as anything else. I see you did not raise the question of the kind of steer. He says the best kind. I think he refers to the Hereford. If any one thinks of going into that business, I think the Hereford steer stands ahead of anything else in that direction.

Mr. ROSSITER: I would like to ask the doctor how he feeds when he feeds for beef; whether he feeds twice or three times a day.

Dr. TOWLE: Twice a day.

Mr. ROSSITER: I would like to have the doctor give his reasons.

Dr. TOWLE: I have twenty head of cattle and four horses in my barn under the superintendence of a twelve-years-old boy; and I might mention that I never have any doubt about their being well taken care of every day. The boy's instructions are not to go into the barn in the morning until it is light enough for him to do his work. He is to do his work then. The cattle are all to be fed and watered. The calculation is to get through the whole work at 10 o'clock in the forenoon. The barn is then closed, and not supposed to be opened again until 3 o'clock in the afternoon. And when I go into my barn at 3 o'clock, I will find my steers lying there not ready to get up. My steers, after they get their rations, will lie there and fatten. They are of that disposition; they are not moving about; they are not restless.

The most that they want is to get their bellies full and then to rest. That is what I like. After 3 o'clock I calculate for them to have got their feed and water before it is dark at night; and at dark my work is supposed to be done, and the cattle are not to be disturbed until the following morning; and I think I get better results that way than to keep them at work and on their feet all day.

QUESTION: Does the doctor feed meal the first thing in the morning or hay?

Dr. TOWLE: The first thing is a feed of coarse fodder, because they take hold of that in the morning with more relish than at any other part of the day. If I am feeding meadow hay, the cattle will take that best in the morning. After that I give grain. I give the grain between feeds, and for this reason: the construction of the animal stomach is such that fine feed will pass out of the stomach, but coarse feed will not pass out until it is chewed again. I always instruct the miller to grind as fine as he can grind, but in the finest that he can grind there are some parts that are not crushed, and I want that chewed again. So I feed with coarse feed first, and then with grain, and then coarse feed, in hopes to have my grain mixed in with the coarse feed, and that, when the coarse feed comes back to be chewed, there must be a portion of this grain come too. I feed grain between rations with that special purpose in view.

Mr. A. W. Cheever, agricultural editor of the "New England Farmer," was then introduced and read the following paper on "New England Agriculture":

NEW ENGLAND AGRICULTURE.

BY A. W. CHEEVER, OF DEBHAM, MASS.

Mr. Chairman and Ladies and Gentlemen:

In preparing a paper to read before you at this time, I have found two difficulties to contend with: First, that the subject for this hour was originally assigned to Secretary Gilbert, of Maine, who, I am sure, could have treated it in a more satisfactory manner than is possible for me; second, that the gentleman inviting me to fill the vacancy caused by Mr. Gilbert's absence gave no

hint regarding the line of thought that ought to be followed. He briefly wrote: "I know that you have an abiding faith in New England agriculture, and I want you to talk about it to our New Hampshire farmers." Now I am something in the condition of a carpenter trying to nail down a floor without knowing just where the floor joists are, or of one holding a clinch-block against one side of a door without knowing exactly where the other fellow is going to drive the next nail. When at home I sometimes like to stir up our own board of agriculture by pointing out the successful methods pursued by other boards, and I have told them how Mr. Gilbert and Mr. Gold sometimes plan the arrangement of the papers read so that all will dove-tail into one another, making them each a part of one complete whole. It seems to me that this subject is broad enough and of sufficient importance to have kept a half-dozen investigators busy all summer gathering facts and statistics that would have had an important bearing on the subject.

A good many people seem to think that New England is getting left out in the cold, and that her agriculture, especially, is rapidly running down, and that it will not be very long before the most of the rural portion will be given over again to forest. In addition to what can be gleaned from the census returns, it would be very desirable to know positively whether the farms of New England are carrying more or fewer mortgages than a generation ago; to know whether farm property is mortgaged in larger proportion than the property of other classes; to know how much of the money saved by frugal New England farmers is being annually sent West or elsewhere to help build up the industries of other sections, or other kinds of business, to the injury of our own; to know how much larger interest is received than it would bring had it been invested in the improvement of our own acres; to know also what proportion of the principal ever gets back into the hands of the lender. We would like to know what proportion of the boys and girls that leave New England farms for other walks in life succeed better than those who remain? We hear of the highly successful, but of those who fall out by the way we take little note; they are soon forgotten. It would be interesting to compare the profits and prospects of orange grow-

ing in Florida with that of raising apples in Maine or New Hampshire; the dairy business of the Eastern States with beef raising on the Western plains; market gardening around the cities of New England with corn growing in Illinois, or wheat farming in Dakota. I would like to have been able to tell you exactly how much more or less the average New England farmer gets for his year's work than the average miner gets for his. A friend in Florida writes me that the men who seem to be doing the best in that State, at the present time, are those who, for a fixed salary, are taking charge of orange groves owned by Northern men or are selling land on commission to other Northern men who have yet to learn the real value of the land for either culture or speculation. I have alluded to these various points to indicate the kind of information we ought to be able to lay before the young who are now hesitating whether to farm it in New England or elsewhere, or to take up some other calling.

During the past summer it was my privilege to take a trip and a sort of bird's-eye view of a stretch of territory reaching from the Atlantic coast to the Rocky Mountains, and to visit a great many farms and interview a large number of people. The trip was arranged by the management of a Western railroad, about a dozen agricultural editors from the Northern and Eastern States being invited, one from New England, one from New York, one from Pennsylvania, one from Ohio, and the others from Indiana, Illinois, and farther West. The special train, with its palace-sleeping and dining cars, with hotel stores for feeding guests and crew ten days, cost the company about \$5,000, and of course this was not done without an eye to business, though we were all assured that no advertising would be required, but that each guest would be left free to express himself according to his own individual impressions. Had it been even hinted that we would be expected to pay for the trip by editorial puffs, I might never have seen that part of the world. I certainly should not have seen it at this time. I had previously been as far West as the Missouri river in Iowa, had visited Illinois twice by different routes, going both north and south of the lakes, and had spent considerable time in the States of New York, Ohio, Pennsylvania, Virginia, West Virginia, and

Kentucky ; always with eyes and ears open for information that would aid one in obtaining a just estimate of the comparative merits of the different sections as places in which to build homes for farmers and others. I have found in the longer settled Middle States more level land and larger fields, in some sections less waste land than New England averages ; on the prairies, still larger tracts of level land, some of it still rich in its original native plant-food ; farther West, in the Territories, were seen thousands of acres of wheat lands, as rich as any in the world, and beyond these the wild, unfenced pasture-grounds, many hundreds of miles in extent. In Maryland and the region westward, through Kentucky, visiting it in early spring while the snow-banks were still lingering in Northern New England, one would be pardoned for having the feeling that the gates of paradise had been thrown open, provided he takes the best view only and overlooks what man may have done to mar the picture ; but in all these beautiful lands from the metropolis of New England to the wealthy young city of Helena, by whichever route taken, I found a great many farmers anxious to sell, and real estate agents still more so. When we hear the term market used we think of cities and places of trade ; the term means trade, and trade usually centers in cities, but it has seemed to me as I have gone over this country that all the land in it is in the market. If the offering of large numbers of farms is a mark of discontent among the owners, it is very evident that the feeling is by no means confined to New England.

Now does any one suppose that those who own or control all this land are going to offer it for a great deal less than they think it is worth ? No ; but on the contrary, they hope to get a little more than it is worth to them, and the owner of a farm, of all others, is presumed to know its worth. Market gardeners around Boston, several miles out, are farming upon lands that are taxed at \$1,000 per acre. In the farming section of my own town of Dedham, fourteen miles out from the city, a good mowing-field is taxed at \$200 per acre. Thirty miles away, farming land of equal quality is valued at from \$50 to \$100 per acre. In some of the best sections of Vermont I have found pasture land held at \$40 per acre. In the peach-orchard sections of Maryland and

the apple districts of Western New York lands well stocked with trees bring large prices. The blue-grass lands of Kentucky, the well-tilled cornfields of Illinois, and the wheat lands of the Red River of the North, all bring good prices when sold in good condition. As we go farther West or South, the average prices are less and less till we come to the government lands, which range from nothing up to \$1.25 per acre. In an open market things will usually bring just about what they are worth, and land is no exception to the rule. If there are millions of acres of land west of the Mississippi river offering for the taking, you may depend upon it that when all things are considered the terms are about as "high as the traffic will bear." Laying aside prejudice, and personal tastes, and the ties of old associations, I think I would as soon buy a farm by drawing numbers from a hat as by employing a real estate agent to make the selection. You may have heard of the man who, having put his farm into the hands of a real estate agent, and seeing the glowing advertisement in the next copy of his newspaper, went to the agent and told him that he had concluded not to sell; he had no idea till he read the agent's description what a desirable farm he owned. Except in periods of crazy excitement, lands are worth very nearly what they will sell for, wherever located. If people could more generally believe this there would be less effort made to change location. I did not propose in treating this subject to try to prove that New England is the only place where a farmer can afford to settle, for I believe that pecuniarily there is little choice between one locality and another anywhere in these States or Territories.

This earth, for good and sufficient reasons I suppose, was built in such a way that every inhabitant living upon it, in whatever quarter, is as directly in or over the center as is any other person, and when he dies the distance to any future abode will be no greater from one spot than from any other. Had the world been made flat, as men once believed, there doubtless would have been some back lots, but, as it is, every man who drives stakes around a patch which he intends to call his home should feel that that home is in the center of the universe. You have probably read of the New York city sportsman who got lost while hunting in the Maine woods. After wandering around for hours, without

making out his bearings, he heard the glad sound of a chopper's ax and finally reached the opening, tired and footsore, but glad enough to once more hear a human voice. Making his case known and asking to be directed on his way, the chopper, Yankee-like, answered by asking, "Where do you live?" "In New York" was the reply. "What!" said the chopper, "in New York? Why, I shouldn't think you would want to live way off there." Do you suppose that woodman was ever lonesome because he wasn't crowded by neighbors? No; his woodlot was right in the center of the earth, just as every man's real estate should be. I love New England, and it never looks more lovely to me than after making a trip outside. In no other section have I found such cosy nooks in among the hills for making a first-class country home. The beauty of our wooded hills with their mingled shades of color, whether it be in summer or in winter, I have rarely seen equaled in any of my wanderings elsewhere. I do not believe a landscape painter was ever born upon a Western prairie. There is no material there to breed or nurture that kind of talent. It would do to live upon and cultivate a plain if one could only have a little mountain or hill for a background, but the background to a prairie landscape is made up mostly of sky and wind.

It is even difficult, on some of the larger estates, for one to get upon an eminence high enough to overlook one's own farm. The prairie woods, how can one describe them? I suppose you have heard of "tree-claims," those little scattered ice or snow-broken poplar trees, a few of which have been set on government land to pay for a quarter section. A New England brush pasture would give far greater promise of a woodlot than do many of these "tree-claims" in a new prairie country. In older settlements an occasional lot will be met where the growth is large enough for fire-wood; but in most sections, everything is made to bend to the one object, grain raising, for it is the grain that is expected to pay the interest on the mortgage, and perhaps buy another section, for there are men outside of New England who seem to want all the land that joins them. In still older sections may be seen little clumps of poplar trees upon the windward side of farmsteads, always leaning and bending away from

the windy points of the compass. I never saw better roads than are possible on an unturned prairie turf when the weather is most favorable. They are as easy as a trotting-track, and where fences are the exception, as in the newer territories, one can drive wherever he may choose. I did not see a "No-trespass" sign west of Chicago. A made road, or one worn by use, is quite another affair, particularly after a shower that has wet down an inch or so. I have ridden in a light carriage when the rims of the wheels would gather mud till they were as wide as a wide-wheeled tip-cart, and the horses appeared to be shod with meadow shoes. It takes two horses at such times to draw one buggy.

The drinking-water, West or South, I do not like to say much about. To one who never uses it I suppose the quality is of comparatively little consequence. I do not think that one who confines his observations to the water-tank of a palace car will have any difficulty, if he likes it, in cooling his blood or quenching his thirst with ice water. There are good wells and some clear streams in the South and West, and the railroad men know where to stop for supplies, but good water is the exception rather than the rule. The color of many of the rivers ranges from a milky white, through all the shades of coffee, to that of the buttermilk which exudes from a batch of butter colored with a low grade of annatto. But the value of New England does not all lie in her beautiful woods or charming hill slopes. We are apt to take too unfavorable a view of New England as a farming section. I have seen no more fertile-looking land and none more productive than much that lies within the borders of these six States. The land along the banks of the Connecticut, and some of the other New England rivers, is as good as man need ask for. The sad thing about it is that men, the world over, who have the best land are often inferior husbandmen. Good land ought to make men independent, but it too often seems to make them careless of the little economies, the neglect of which always invites poverty. They depend too much on the land and too little on themselves. They harvest what grows but do not control the growth, as do men who become wealthy working poorer soils. I do not see how better farms could be desired than can be easily

made throughout the whole of Aroostook county. There are no better pasture lands out doors than many that may be seen in Vermont and portions of New Hampshire; but nowhere do we find the land, as a whole, half cultivated or producing half what it is capable of producing, and when we remember that the best work pays much the best, we may perhaps reckon that the profits, which are the main thing, are not one quarter what they might or should be.

A hundred or more years ago our fathers began a system of farming here in New England by which the native fertility of the soil would necessarily become depleted. The pioneers in the newer States have followed in the same course till American agriculture is looked upon by the people of older nations as a system of mere soil robbery. We have not been farmers in the best or true sense, but robbers of what rightfully belongs to posterity. None of us have much respect for men who are willing to leave the world worse than they found it, and if we profess to believe in the brotherhood of the race we should endeavor to make the world a little better for our having lived in it; otherwise we have hardly deserved to live. The great mistake of the American farmer has been in being always ready to pull up stakes and seek out a new soil to deplete as soon as the old one begins to wane, instead of settling down to the building of a permanent home where he is.

I am not complaining that New England's surplus population has moved westward to make, so far as the people are concerned, a second and a much greater New England, for it seems like that when two out of every three one meets inquire after the uncles, aunts, or cousins they have left in some one or more of these Eastern States. There would not be room in the old hive for all the increase of a healthy colony. But what I do regret is, that we have cultivated such a spirit of unrest and dissatisfaction with our own. We are too much like some boys that I have known who would spend their whole time running over a berry pasture looking for better picking while the wiser ones would be filling their baskets. I have an "abiding faith" in New England as a good country for building up first-class farm homes, and it is my aim to show that, all things considered, our sons

and daughters can do as well here as elsewhere. To this end I have been trying to find out what the census returns have to teach us. Of course they are not absolutely correct. They doubtless make the total farm product of the country materially less than it actually is. I am inclined to think a good deal less. The people of the country must obtain a very considerable portion of their living from gardens and poultry yards that we would hardly expect to see fully valued by statistical collectors; but the estimates ought not to vary so much as to seriously impair their value as a means of comparing the products of one State with those of another.

The returns are from the last United States census of 1880, and based on statistics gathered the previous year. The next census, for 1890, will doubtless show marked changes, especially in the newly settled States and Territories. Dakota, which was scarcely known as a farming country in 1879, seven years later stood sixth among the States in the amount of its wheat product, which was doubled the following year, giving it probably the third place on the list. It also stands high up in its products of oats, corn, and other crops, as well as in the number and value of its live stock.

I have selected for comparison the six New England States, six Middle, six in the Northwest, and four of the border Southern, with South Carolina and Florida. The Middle States include, of course, those three grand old agricultural States, New York, Pennsylvania, and Ohio. The Northwestern six all lie in a bunch, while to the Southern Border States Florida is added, because of the interest it is creating among Northern people at the present time. South Carolina was taken to complete a half dozen, it being supposed to fairly represent the most productive Southern States. I have also added California and Dakota. Arranging them in order according to the number of farms in each, Illinois would stand at the head with her 255,741; next comes Ohio with 247,189; then New York, numbering 241,058, followed by Missouri with her 215,575, and Pennsylvania with 218,542. At the other end of the column stand Delaware with 8,749, and Rhode Island with 6,216. But the number of farms or the relative size of a State has little significance in the inves-

tigation we are pursuing. A comparison of the average product per farm, or its value per acre, is more to our present purpose.

Arranging the farms of these different sections according to the value of their annual gross products per farm, they would stand as in Table No. I., which also gives the number of farms, their average size in acres, and the estimated value of their gross products per acre.

Table II. places the States in the order of their annual production per acre.

Table III. makes four groups of six States each, showing the relative productiveness of the several groups, as well as the position of each State in its own group.

TABLE I.

STATES.	Number of farms.	Average size in acres.	Value of total products per farm.	Value of products per acre.
California	35,934	462	\$1,660	\$3.50
New Jersey	34,307	85	872	10.26
Illinois	255,741	124	800	6.45
New York	241,058	99	738	7.45
Iowa	185,351	134	736	5.49
Delaware	8,749	125	726	5.80
Maryland	40,517	126	721	5.72
Massachusetts	38,406	87	636	7.31
Ohio	247,189	99	634	6.41
Vermont	35,552	137	622	4.54
Rhode Island	6,216	83	611	7.35
Pennsylvania	213,542	93	607	6.09
Indiana	194,013	105	590	5.61
Connecticut	30,598	80	590	7.37
Michigan	154,008	90	590	6.55
Wisconsin	134,322	114	543	4.77
Minnesota	92,386	145	537	3.70
Missouri	215,575	129	446	3.45
South Carolina	93,864	143	446	3.11
New Hampshire	32,181	116	421	3.63
Virginia	118,517	167	389	2.43
Kentucky	166,453	129	384	2.28
Tennessee	165,650	125	376	3.00
Maine	64,309	102	343	3.36
Dakota	17,435	215	332	1.54
Florida	23,438	141	323	2.29

TABLE II.

VALUE OF FARM PRODUCTS PER ACRE.—U. S. CENSUS, 1880.

<i>States.</i>		<i>States.</i>	
New Jersey . . .	\$10.26	Wisconsin . . .	\$4.77
New York . . .	7.45	Vermont . . .	4.54
Connecticut . . .	7.37	Minnesota . . .	3.70
Rhode Island . . .	7.35	New Hampshire . . .	3.63
Massachusetts . . .	7.31	California . . .	3.50
Michigan . . .	6.55	Missouri . . .	3.45
Illinois . . .	6.45	Maine . . .	3.36
Ohio . . .	6.41	South Carolina . . .	3.11
Pennsylvania . . .	6.09	Tennessee . . .	3.00
Delaware . . .	5.80	Virginia . . .	2.43
Maryland . . .	5.72	Florida . . .	2.29
Indiana . . .	5.61	Kentucky . . .	2.28
Iowa . . .	5.49	Dakota . . .	1.54

TABLE III.

AVERAGE PRODUCTS PER ACRE IN FOUR GROUPS OF STATES.

<i>Group of Six Middle States.</i>		<i>Group of Six Northwestern States.</i>	
New Jersey . . .	\$10.26	Michigan . . .	\$6.55
New York . . .	7.45	Illinois . . .	6.45
Ohio . . .	6.41	Indiana . . .	5.61
Pennsylvania . . .	6.09	Iowa . . .	5.49
Delaware . . .	5.80	Wisconsin . . .	4.77
Maryland . . .	5.72	Minnesota . . .	3.70
Average . . .	\$6.95	Average . . .	\$5.43
<i>Group of Six New England States.</i>		<i>Group of Six Southern States.</i>	
Connecticut . . .	\$7.37	Missouri . . .	\$3.45
Rhode Island . . .	7.35	South Carolina . . .	3.11
Massachusetts . . .	7.31	Tennessee . . .	3.00
Vermont . . .	4.54	Virginia . . .	2.43
New Hampshire . . .	3.63	Florida . . .	2.29
Maine . . .	3.36	Kentucky . . .	2.28
Average . . .	\$5.59	Average . . .	\$2.76

It will be seen that the average New England farm produces more value in crops per acre than the average Northwestern farm, and that not one of the great Western or Northwestern States produces as much value per acre as does each of the States of Connecticut, Massachusetts, and Rhode Island, nor does the

average Southern farm produce as much value per acre as does our least productive New England State.

There is nothing about these figures that need hurry our New England farmers about selling out and going West or South. If there is, I am unable to discover it. A 167-acre farm in Virginia produces \$389 in a year, while one of half the size in Rhode Island produces \$611. A 141-acre farm in Florida produces crops worth to the man who raises them \$323, while a Vermont farm of smaller size yields a value of \$622. The average Illinois farm of one hundred and twenty-four acres produces \$6.45 per acre, while the Massachusetts farm of eighty-seven acres brings a return of \$7.31 per acre. The Iowa farmer with one hundred and thirty-four acres gets \$5.49 per acre, while the man who works but eighty acres in Connecticut finds those acres yielding him \$7.37 each.

The Western wheat or corn grower plows probably from four to ten acres to one plowed on the New England farm, and when his crop is harvested it is worth scarcely more than half what it would be worth right here in the market. The stalks or straw of an acre of corn or wheat are worth more here to many a New England farmer than the grain is worth to the man who produces it in the Western States. The average Western farm is tilled at a less cost than the average Eastern farm, so that more acres can be worked for a given sum, but here we need not work as many acres, as we obtain larger yields per acre as well as larger prices per bushel. New Hampshire has stood very near the head in bushels of corn per acre, as has Connecticut in raising wheat. Still we are not all happy, nor should we be when our New England farms average a return of but \$5.59 per acre, for you must bear in mind that this is not the net profit but the gross product. It includes the hay we feed our cattle and horses, as well as everything else consumed on the farm.

This is not a cattle-show after-dinner speech, and I am not here to deal out taffy to draw in farmers' votes, nor did I come up here to make you contented with your farming results. I have tried to show that if you are not satisfied with them there is still no better place in the whole United States for you to start on a better system of farming than right here in your own State, and I firmly believe what I am saying.

Now let us see what you are doing. On an average 116-acre farm in New Hampshire, about two thirds of which is classed as improved, you have an investment of \$2,300 for land and buildings, \$94 for farm implements and machinery, and \$304 for live stock, or \$398 as working capital. You are supposed to be using seventy-two of these one hundred and sixteen acres for stock and crops, the remaining forty-four acres presumably being forest or waste land. On these seventy-two acres you are keeping the equivalent of about eight mature cattle and horses, requiring nine acres to support each animal. Your estimated products, including hay, straw, and grain for your animals, and vegetables consumed in the family, are worth in market, if sold, about \$421.

Do you think that is quite enough? The average farm employs two team animals and a fraction over to do the farm-work. This team-work, with owner and a hired man part of the time, does the work required in producing five bushels of wheat, forty-two of corn, thirty-three of oats, three of buckwheat, and two and one third bushels of barley; also, one bushel of rye and one hundred and five bushels of potatoes. The three cows, which is the average number, produce three seventy-five-pound tubs of butter annually, at least one of which will be needed upon your own family table. They also produce twenty-five pounds of cheese. You have other cattle growing, equal to nearly three cows, and six and two thirds sheep give you thirty-three pounds of wool; eighteen tons of hay are cut for home use and for market. Your orchard yields an income of thirty dollars. From the amount of grain and potatoes grown, only about three and one half acres appear to be under the plow. Can you afford to keep a pair of team animals to do so little? Can you afford a hired man to drive them and to help milk the cows, even in the summer season, with so little to show for his work? Your Western brother with a 116-acre farm in Illinois or Dakota would have fifty acres under the plow.

I said I had an abiding faith in New England agriculture, but not with the culture part left out. I am not talking theory, for I have put in practice on my own farm the system that I would recommend you to adopt. Few cultivated farms in this State were more forbidding than was mine when I began to put it in

condition to use. Its fields, surrounded with heavy stone walls, averaged less than two acres each. Those walls, together with hundreds of tons of scattering rocks half buried in the soil, were completely buried in underdrains. One swamp of over two acres was ditched and filled till there was no space left for more stones, a large surplus being still left for building roads on the highway. After clearing, from one third to two thirds of the land was annually under the plow. I have had one third the farm in field corn in a solid bunch. An Illinois friend visiting me said that looked like home.

Instead of using nine acres for keeping one cow I made two acres keep her and had considerable surplus feed for another. I have seen oxen strained by too hard pulling, and cows injured by crowding them with rich feed, but I never knew an acre of land injured by being made to produce all the weight of crop that the Creator could furnish sunlight for.

Most of our farm crops require little more than three months for growth. Some grow in less time, but there are more than six months of growing weather in much of New England. Why let our land lie idle half the time in summer and all the winter? I have averaged more than two crops per year from my whole farm, excepting the pasture.

If we would avoid Western competition we must adopt some of the methods of our Western brothers. There is room for a great many large fields here in New England, and with machinery to match them there is more profit in their cultivation here than a thousand miles from market. The crying want of the Western farmer is more stock to consume his waste fodder. Beef raising pays something, but dairying well managed pays much better.

In dairying, our clean water and nearness to market give us much advantage. We should have a co-operative dairy factory in every town where grass and corn will grow, and after securing a skillful workman should give him all the milk or cream he can handle. Wherever well-managed factories are established and the farmers crowd their farms with cows, there the husbandmen are satisfied with their business and have "an abiding faith in New England agriculture."

QUESTION: I want to inquire of Mr. Cheever how he gets two and a half crops off from his farm in a year.

MR. CHEEVER: I will tell you how I get more than that, and then you can figure on the lesser number. In an unusually favorable season, when the spring was early, I had a crop of rye, sown the previous fall, which was ready to begin to cut for green feed the first day of May. That is three weeks earlier, probably, than the average. It was cut and fed from day to day until it was all fed. Then the land was plowed and sown by the 10th of May to oats. The rye, by the time I was through cutting, was full size, as I commenced cutting as soon as the heads showed. The 10th of July, the oats were in bloom, ready to cut. They were cut and fed green awhile, the balance made into hay, and the ground cleared. It was then sown to barley about the middle of July. The barley made a growth almost fully headed out, about two and a half feet high, and was cut the middle of September. It was time then to pick apples. It was in an orchard of winter fruit. The three crops were out of the way in season to pick the apples, and the apples out of the way for sowing rye the same fall; but I missed of doing that, and I always thought I missed my opportunity that year. Corn can be grown after winter rye. I used to think I must make an explanation as to why you probably could not do it here; but I find up in Northern Vermont that the farmers there are raising winter rye and getting it off in season to get in another crop the same season. The ensilage crop can be grown easily after the rye. That makes two crops of rye and corn. Millet comes in after rye in the spring. Barley should be sown in August, on any land that can be spared. It is a good late fall crop. My twenty-six acres of land yielded me from sixty-five to seventy acres of crops annually. Two acres of reclaimed meadow, sown to orchard grass, generally produced three good crops a year.

QUESTION: How much rye did you sow?

MR. CHEEVER: I usually sowed all land to winter rye or wheat that otherwise would have been vacant. I could never afford to pay taxes on idle land.

QUESTION: When you cut the rye, did you feed it green?

MR. CHEEVER: I began to cut and feed green as soon as it

was worth cutting, and fed green as long as it was suitable to feed, and then made the balance into hay.

QUESTION : Did you not injure your land by this high-pressure farming?

Mr. CHEEVER : I did not ; my aim was to see how high a condition I could get that farm in and still have it profitable ; and I learned that it was more profitable to get off several crops per year.

QUESTION : What was the nature of the soil at the commencement?

Mr. CHEEVER : Anything that you could ask for ; broken and uneven. The poorest of it was gravelly knolls. There were no four acres but that had spots in it that I wished somebody else owned.

QUESTION : What town was the farm in ?

Mr. CHEEVER : In Wrentham, Mass. It is comparatively an unpopular farming section.

QUESTION : What comparative value do you think there would be in this crop of rye in cutting it for fodder or plowing it in ?

Mr. CHEEVER : I never could believe that for me it was profitable to plow under any forage crop that I could feed to cattle at a profit. I could not afford to plow in crops to improve the soil. By raising corn and rye and other forage crops constantly, I was turning in a good deal of root material. The stubble and roots would keep the land light without turning in any of the forage ; clover and corn and rye are worth too much to use expressly for manure.

QUESTION : How much manure was put on the land treated in that way ?

Mr. CHEEVER : On lean land I used fertilizer enough to get full crops when I got any. At first I used it quite freely, and on distant parts of the farm continued to use it, but saved all the manure there was. It all went on to the farm.

QUESTION : How many loads of manure to the acre ?

Mr. CHEEVER : I cannot recollect definitely. I will say this : I intended to put it on so thick that there would not be much expense in spreading.

QUESTION : Did you use a manure spreader ?

Mr. CHEEVER: I did not; for my farm land was so hilly that I could not run the spreader up hill very well. I used to draw most of it in the fall or winter.

QUESTION: Did you spread it or put it in heaps?

Mr. CHEEVER: Always spread it. My aim was to have all tillage fields manured in the fall, and ready to work in in the spring without waiting to haul heavy manure over soft land.

QUESTION: Did you ever let rye come up again and get two crops without plowing?

Mr. CHEEVER: Yes; I have done that, but I don't believe in it, for the second crop would not be a very profitable one.

QUESTION: Did you make more than one application of manure or fertilizer per year?

Mr. CHEEVER: Yes; an application for nearly every crop; and when I sold, I had eighteen months' stock of manure on the farm to go with it to the purchaser. The cellar was full and large fields manured ready for the next spring's operation without the necessity of using the winter-made supply till late summer.

QUESTION: What was your source of income?

Mr. CHEEVER: Butter, pork, beef, poultry, some seed grain, and young stock.

QUESTION: I see you make by your estimate the annual yield per cow pretty low.

Mr. CHEEVER: I did not make it; it was taken from the United States census.

QUESTION: Does not that place the dairy product in a false position?

Mr. CHEEVER: The census statistics do not include milk. They enumerate all the grains that I mention, and then in another column you will find estimated the value of all the products raised, sold, or consumed on the farm. By adding up the other columns it will give the actual products enumerated; and yet there was a margin of some thirty-three per cent which must have gone into that estimate, which must have included milk, wood, and other things not enumerated. I find the estimate was fifty per cent above the actual products enumerated, so I fear that the actual income of the average New Hampshire farm is much too low.

Mr. CONNOR: It is my belief that the system of taking the census is very imperfect, and that a good many men appointed census-takers are not competent. It seems to me we ought to have in that work men more interested in taking the census accurately; for instance, some good, competent man living in the town, instead of sending a stranger in. There should be somebody to take the census in every town who is a resident there, and who knows something about the town to begin with, and whom the people know. Such a man could manage the work a great deal better than it is done by the present method. There is too much effort made to get this position for its salary, without regard to the real business of gathering statistics.

Mr. CHEEVER: The point that I would leave on the minds of this audience is that you should fully use your farms; cultivate better and cultivate more.

Recess was then taken until 1.30 o'clock.

AFTERNOON SESSION.

The meeting was called to order at 1.30 o'clock, when the chairman introduced Charles McDaniel, of Springfield, member of the Board of Agriculture from Sullivan county and master of the State Grange, who spoke upon "Advantages of Eastern over Western Farming."

ADVANTAGES OF EASTERN OVER WESTERN FARMING.

BY CHARLES MCDANIEL, OF SPRINGFIELD.

In speaking upon the advantages of Eastern over Western farming, I am aware you will infer that I am on the hard side of the question, but if there is any place between the shores of the Atlantic and the Pacific where there are unmistakable signs of thrift, industry, perseverance, and home-like comforts and attractions, it is found in the East. We are aware that in the East, the older part of our United States, there are deserted farms and dwellings; their former owners have gone to their long home and the children have accepted the advice of Horace Greeley and gone West. I know that many of them have harvested a full crop of disappointment and financial if not moral sorrow,

while some have doubtless succeeded. To illustrate: I stopped over night with a far Western farmer or ranchman, and while conversing with him in regard to his fine ranch, nice buildings, and comfortable surroundings, he told me that he came there about thirty-five years previous in company with fifteen or twenty other young men; that so far as he knew they, the others, had been unsuccessful, or "gone to the bad." This led me to form this conclusion, that in the far West, even near the Pacific, where grow the olive and the orange, and where nature has done so much towards providing for the needs of man, on account of this abundant supply so easily raised or cultivated, the man has, in too many cases, done so little for himself that he has become literally too lazy to be anything but a tramp, and a consumer of wine if he can manage to get it.

In the East, where nature has done less by way of this spontaneous production, man has acquired habits of skill, industry, and perseverance, which have given character and stability to our Eastern agricultural community. Perhaps this may be the reason why the East, even New Hampshire, is a good place to emigrate from; but thanks be to the Giver of all Good that some have been wise enough and not too proud to acknowledge their mistake in going West, and have returned to the home of their youth.

To specify more particularly some of the present advantages of Eastern over Western farming, let us consider the difference in the cost of a home here and there. Here in many farming towns only eight or ten miles from railroad facilities, we can find plenty of farms of one hundred or more acres, with a goodly amount of wood and timber, comfortable buildings, and pure water, one of the greatest blessings to mankind, which can be bought for from one to two thousand dollars. A person with due economy can support his family, at the same time better the condition of his farm and have a bank account besides. This has been proved many times in our immediate vicinity. I have in mind the case of a man in Sullivan county who had only \$200. He bought a farm, and after working a few years paid for it, built a new house, and bought an adjoining farm. At the time of his death in 1880, he had a family of twelve children,

his farms were paid for, and he had money at interest. While here we cultivate comparatively few acres, yet those acres are almost sure to pay a very much larger percentage than many of the broad Western acres.

A farm of one hundred acres in the West, if it has buildings and is in a good location, would cost from \$5,000 to \$10,000, unless the chinch bugs, grasshoppers, hog or hen cholera had driven the mortgaged occupant to the wall, and he had been obliged to sell to pay what he was owing. If perchance he has money enough left, he may return to the East, where, with proper application to business, he may secure a competency and a happy home.

We have been speaking of cheap or low-priced farms in the East; but if one has the capital he can here have the broad acres where the corn-rows are a mile long, and all the modern machinery can be used as well as in the West. I was told only a few days since that one of our New Hampshire farmers sold produce from his farm amounting to \$20,000 annually.

A gentleman from Tennessee passed through this county about two years ago; he had never been here before, having lived in Michigan and other Western States. When I met him he at once asked the price of land where we were, which was within sight of railroads and villages. When I told him that land had recently been sold at auction, administrator's sale, for about \$6.00 per acre, he was very much surprised. He highly complimented our highways, thrifty villages, and mountain scenery, and was especially pleased with our grass lands. He said he verily believed that our snowy winters were a benefit, and more to be desired than the Western mud and barren fields which they have so large a part of the year. He voluntarily expressed the opinion that at no distant day we shall experience a tide of immigration, and again the farms, the lands that have been deserted and resting, will be occupied and will produce crops that will make glad the heart of the owner and cultivator. While we are a large manufacturing State we have a home market for our products, and with pure food, first-class goods produced near, put upon the market fresh, and at the right time, we shall be more than happy in our New England homes.

QUESTION : I should like to ask the gentleman if he did not see any bright side when he was in California. We have a saying that there is always a bright lining behind all dark clouds.

MR. McDANIEL : I will say that the Californians are always endeavoring to put the bright side out, and in order to get at the dark side you must question them. We certainly have seen what you may call the bright side, because we have known of the places where they have made real estate profitable there, when the tide of emigration has gone from the East ; and they have realized large profits from the sale of land ; but so far as realizing profits from crops is concerned, I could not see any really bright side.

QUESTION : You say one man in New Hampshire has sold \$20,000 from his farm during a year. How is it with Leland Stanford getting \$200,000 from his farm in one year?

MR. McDANIEL : California counties are very much larger than in New Hampshire, as a whole, and we admit that there are some very large estates. We know one man has 2,500 acres all in wheat, and the grain standing as high as your head, and the man who owned that was making money from renting the land. He would not sell it. He was waiting for a price ; and that year that I speak of, he was in a location where he would get a good crop.

George S. Philbrick, of Tilton, member of the Board from Belknap county, spoke upon "Feeding for Milk." We regret our inability to report this address or the discussion that followed.

Hon. J. B. Walker, of Concord, was expected to speak at this hour upon "Grass Culture," but was unable to be present, and Hon. Warren Brown, of Hampton Falls, was introduced by the chairman, and spoke as follows :

GRASS CULTURE.

BY HON. WARREN BROWN, OF HAMPTON FALLS.

It is entirely unexpected to me to appear before you to speak on this subject. Yesterday, at night, I was informed that Mr. Walker was not able to be present, and there might be some vacancy ; and as I was coming here, I consented to offer some

remarks on this subject, having been engaged some years ago almost exclusively in this line of farming.

In the first place, the selling of hay is not the crime that some people would make it appear. We sometimes see it in print that it is robbery to sell hay. In some cases perhaps that may be true. Mr. Walker says that a ton of hay fed to stock will make about one cord of manure. By selling that hay he can have enough to purchase for his farm three cords of manure; therefore how can there be any injustice in selling hay? I would not for a moment advocate the selling or raising hay for the market unless something can be returned to the soil. I live in a locality that is emphatically a hay country. We have large tracts of salt marsh. Those men who own farms there cut considerable salt hay. There is no need of manure or fencing. Those farms are kept in a high state of cultivation, and the hay may be sold without impoverishing the land. Others by overflowing with water or by use of ashes may sell hay without reducing the fertility of the land. As long as hay must be had, somebody must raise it for the market. There should be some system pursued to do it to the best advantage.

In the first place, if you are going to raise hay for the market, or for any purpose, do not attempt to reverse the laws of nature. There are thousands of acres of land in this State that the Creator never intended to grow grass, and a few thousand acres that are adapted to it, and we should use that. If we have this kind of land, — the kind to raise grass to the best advantage, — in these times we want to have all the obstructions removed from the land, such as stone, and rocks, and trees, and those things that would interfere with the use of improved machinery. This is very necessary. Then the low spots need to be drained. It is very seldom that land needs to be entirely drained. Oftentimes spots interfere with the work. Oftentimes this water comes from a distance, and if we get at the place where the water starts, a simple drain will do a great deal. After that the land should be thoroughly plowed. Some people think that grass will grow almost anywhere, that it will grow on ground that is not plowed, but I tell you good plowing is the foundation of all success in agriculture, and that work should be thoroughly done. Then it

should be well pulverized and harrowed. It is just as essential to have a fine seed-bed for grass as for any other crop. You will find if you make the soil fine that it will do very much better. That is all-important. It pays well to harrow the land very much more than many people do. I think the place where most people leave off harrowing is where those that would do scientific work would begin.

After having got this fine seed-bed made, there should be some fertilizer applied, either barnyard manure, or ashes, or something of that kind. I have found that about six cords of barnyard manure applied with a spreader make a very good dressing for grass. I have used largely leached and dry ashes on land, and they have always worked well with me. I never have found ashes to miscarry except on loose, dry land ; I have found hard land to become finer, so I suppose they do something in the way of chemical action on the soil. Leached ashes are worth more on some soils. For actual value to use, and with a view of using that which possesses a greater value, as the chemists have given it, I would rather have a lighter dressing of dry ashes, although I have seen men who contend that a leached ash is just as well as the dry ash. I think there must be some difference in the land, because a part cannot be as great as the whole. I like dry ashes better than I do leached ashes, and I find dry ashes respond very well after leached ashes.

I have tried bone ; I think bone is good for nothing as a fertilizer until it becomes decomposed, because it lacks more or less moisture. Dr. Hayes, of Alton, told me that he tried a heavy dressing of bone on heavy land, which for seventeen years continued to increase in fertility. In 1880 I plowed up a large portion of mowing land and applied bone. I think the great trouble is that they do not put on enough. You won't have to plow so often. I had quite a lot of bone on hand at that time, and I applied about 1,500 pounds to the acre. When I came to take off the first crop, it seemed to me that it did not amount to anything. In 1887 I was not at home when the hay was cut, but I found that there was considerable grass last year. I drove the machine, and I was surprised to find that there was so much grass there, the most grass I ever had. I conclude

that the bone is getting to work. I think that the fault in using bone is that they use it on dry land, and use it in quantities too small to expect very great results. Fifteen hundred pounds of bone do not cost as much as to dress with barnyard manure, if you buy it or draw it any great distance. I never would recommend a dressing of bone on dry land, because there is not moisture enough to decompose it.

After land has been dressed, you want to look out and get good seed ; we say timothy and red-top ; they do not care about having clover in market very much, although stablemen to-day are finding clover hay very good for horses. After putting in timothy and red-top, we seed to clover, so that you will get for one or two years a heavy crop of clover, and then those roots have gone down and the herd's-grass has taken root, so that you will get more herd's-grass and more red-top and more hay than you would if you had not put on the clover. Another grass which I have used to seed with is alsike. In 1887 I seeded with that ; I found that it does hold in and the seed ripens and spreads about on the land. The hay dealers like to have it in because it has a sweet smell ; if you are unfortunate enough to get your hay wet a little, that will add to the flavor of the hay. After you have got your land all ready it is very hard to be beaten with poor seed. We got the white daisy on to our land and it took twenty years to get it out. We want to examine the seed. I never care anything about a dollar on the price of seed if I know I am getting good seed. Always examine with a microscope.

Now as to the quantity of seed. If the seed was good it would not require as much as we generally use. I believe somebody has figured up that a bushel of seed to the acre would, if evenly distributed, give seven seeds to the square inch. That would be altogether too much seed if it should all come, but for some reason or other all the seed does not come up. I have seen grass land that was too heavily seeded. Put on seed enough so that when it comes up the ground will be pretty thoroughly covered with grass.

When the crop is in good order we want to cut the hay at the right time. Cut it about the time the herd's-grass is in bloom ;

it makes then about as good hay as we can get. Be accustomed to the way of making hay in the cock. By that I mean well cocked, not nine feet long and three feet high. I have cut hay and put it in the same day, but that requires practice. The hay handles better that is made in the cock, and packs much closer in the barn. Put it in the barn pretty solid. Put the iron bar into the mow, and tread the hay down.

A word as to witch grass. I should be glad never to see a spear of it in the field.

A MEMBER: There is a way to put it out by sowing orchard grass.

MR. BROWN: The remedy is worse than the disease. By raising corn fodder the witch grass looks sick, and we think that reduces it down about as well as anything. It is not as profitable raising hay with us as it used to be. Cheap transportation has affected us. I have known it brought to Boston from Chicago for four dollars a ton, and it takes nearly that to carry it from Portsmouth.

MR. ROSSITER: I would like to ask Mr. Brown what objection he has to witch grass, except when he plants his ground.

MR. BROWN: Because in my practice I do not get nearly as much hay where the witch grass grows. The crop is all underground, and it crowds out all the good kinds of grass. We cannot afford to raise it if we want to get a good crop of hay. I have raised three tons to the acre by actual measurement, but you cannot do it where you have got witch grass, — or not long.

A MEMBER: I will show you land where we have raised and cut four tons to the acre and never plowed for ten years. The worst part is that it sometimes grows too thick.

MR. DANIELL: What is the soil?

ANSWER: It is low land, flowed by a river.

MR. ROSSITER: I have handled witch grass for forty years. When I went first to farming I had thirty acres of witch grass. I had a man who was in the stage business who kept some stage horses. I had not money enough to stock my farm, and I sold hay and bought manure; and this man always wanted to buy. He had a scaffold of hay that he had always paid me for, six tons. He did not know what to do about buying this: never had fed

any witch grass as I know of, only what was around my farm. He went and looked at it two or three times ; did not know whether his horses would eat it or not ; but he tried it and fed it out, and his horses ate it, and he said that was the best scaffold of hay that he ever bought. I guess I put up that scaffold of hay six or seven years, and he would speak about that, and tell me to put in all the witch grass I could ; he was a most particular man to have his hay all clean and all right. I would rather have a ton of that witch grass to feed to my oxen and cows than any hay that I cut on my farm. I have a bent of hay, twenty or twenty-five tons, of clear witch grass. We have folks who come and want that witch grass, and I call it — I don't know as my judgment is good for anything — I call it the best hay that I cut on my farm. I will acknowledge that it is not very pretty stuff to hoe among, but with the exception of when I want to plant I would not want it taken out of my farm.

Mr. HAZEN : I would say to Brother Brown that, if he would like to see, I will take him over in Vermont and show him land that will cut four tons to the acre in one crop.

Mr. BROWN : I think people generally overestimate the amount of hay cut to the acre, unless they have means of weighing. I have cut three tons to the acre on quite a number of acres — ten acres at a time ; but it takes a good deal of hay, and when my friend Hazen speaks of cutting four tons he has got a little further in the farming business than I have.

QUESTION : In regard to covering grass, do you cover deeply ?

Mr. BROWN : Very lightly.

QUESTION : Anything more than what a roller would cover ?

Mr. BROWN : Sometimes cover it with a brush harrow. We sometimes use a roller. In relation to top dressing, I do not think the quality of hay is as good where they use top dressing. It is possible to keep up lands that are top dressed for a long time. When I was in that business I used to plow just as soon as I saw the crop was failing.

QUESTION : Do you simply stock with grass seed on new ground ?

Mr. BROWN : All that is low enough I stock with grass seed.

QUESTION : Do you prefer autumn or spring for seeding ?

Mr. BROWN : If I was going to seed low ground I should do it the last of August or the first of September ; and on land higher than that, just before it closes in the fall. I have sown my seed with a seed sower for a good many years. It does not make any difference about the clover if it does not start.

QUESTION : What depth would you have grass seed covered ?

Mr. BROWN : Just enough so that it won't dry up and get lost. I said that a bushel of grass seed would furnish seven seeds to the square inch.

President HUMPHREY : On the question of witch grass, I would say that I have raised considerable of it first and last. And perhaps my friend McDaniel may think it depends on location. My land is on the Merrimack river, and I have been very successful in raising crops in that ground. I don't put much seed in the ground. I let it run about three years, and sometimes four ; put on all the fertilizer I want ; turn it over just as light as I can. I don't calculate to turn it over three inches. Three inches breaks the roots well and distributes them. Then roll it and put the seed on. This is done immediately after haying, and next year we go right along again. I have not failed year after year of a splendid crop of witch grass. I don't think it better to let it run much more than that. I would not cultivate any land that you want to raise grass on. Keep your grass land for grass, and your corn land for corn. That is my theory in farming ; and you want grass land that is adapted to it.

QUESTION : How do you keep the witch grass out of the corn ground ?

Mr. BROWN : We don't calculate to get it in there. Good corn ground would bear witch grass. Good first-class corn ground would raise even mulleins.

A MEMBER : I have had some experience in raising witch grass, and there is no grass that will give so much to make butter from as witch grass.

Mr. CONNOR : I am satisfied that this matter of raising witch grass depends very much on the soil and condition of the farm. It is possible that where the land is meadow or river land it is profitable, but on high ground it is not profitable. I put in herd's-grass and red-top, and the witch grass will kill that out and then

will kill itself out. I want to inquire of Mr. Brown whether it is difficult to eradicate this witch grass.

Mr. BROWN: I have found that it was, and our people complain that it comes out hard. It grows up in tufts if you don't sow seeds. I believe now that we have struck just what the thing is; that on this interval land witch grass grows differently from what it does on our lands, and it makes a different crop from what it does with us. With us, on our best grass lands it grows up short, and it does not ripen at the time the other grass does; so I think every gentleman who has spoken in favor of witch grass lives on interval land, and if they can raise four tons to the acre, I bid them God-speed.

Mr. ROSSITER: I have got twenty-five acres of hill land that is covered with witch grass, and I had it all in corn two years ago; we seeded it down and got a good catch, and got two crops of clover. This last year we got one crop, and on part of it two. For the next two years I am going to get hay on that land that will grow two to two and a half feet high. I will get as handsome hay as I can put into the barn if I have good weather to get it. I have not had any land with witch grass that run out and run down so short as they tell about. When I first went on my farm I had twenty acres of witch grass. It stood about one and a half or one and a quarter tons to the acre. Probably that had been mowed for ten or twelve years, more than half of it.

Mr. THOMPSON: My experience is that down in Strafford county our land is somewhat similar to that of Mr. Brown's, and the witch grass acts with us just as it does with him, and we don't like it in my section. On the farm next to mine they have a lot of witch grass, and several years ago they started in with some orchard grass which they dislike very much. They have the same results that Mr. Brown speaks of. The orchard grass seeds so early that unless you cut it early it will get into the neighboring fields, and by cutting it early it very often interferes with your cultivating your crops before hoeing.

Mr. McDANIEL: Put alfalfa and orchard grass together and they will mature about the same time.

Mr. CHEEVER: I wish to speak of a method of cutting and cur-

ing hay that is quite different from that of Mr. Brown's. In good weather I would not object to his method. I think that cocking it up and letting it stand two or three days would cure it sufficiently so that, turning it and giving it air, it would be safe to put in ; but I don't like to use hay caps and cock it up. My method is to begin in the afternoon after four o'clock and cut enough for the next day's carting, and let it lie without touching until the next morning, then use the tedder, and keep the tedder running with one horse and a boy during the forenoon. Immediately after dinner start that same horse in the horse rake and another pair of horses with the team and go to carting into the barn. I never ask to have hay cured any better than it can be cured in these few short hours in good weather. In that way you escape all the labor of cocking and all the risks of bad weather, and your hay will pack solid. I am speaking of red-top and timothy, not clover.

President HUMPHREY : I have followed that practice eight or ten years, and no better hay comes out of the barn than mine. I have found it a success. In that way you can get your hay a good deal cheaper than you can any other way.

Mr. CHEEVER : I will add one word to that. People are too much afraid to go to work when it comes hay time. If it was time to cut my grass and I thought there was a storm coming next day I would not stop that afternoon, I would cut my grass ; and if there was a week's storm on it, it would not hurt it so much as it would to stand and be growing hard during that week.

At this time the meeting was adjourned until 7 o'clock.

EVENING SESSION.

The meeting was called to order at 7 o'clock and the subject of grass culture was continued by Mr. Cheever as follows :

In regard to orchard grass, I can see why there was a difference of opinion to-day upon that grass. I think we can all see why there was a difference of opinion on witch grass. We find that men are not all situated alike. Orchard grass was condemned. My impulse at the time was to rise and protest. Then I thought of the many people who might be misled by my advo-

cacy or defence of that grass; and so now I take the opportunity to state what my estimate of orchard grass is. Perhaps I may as well take the negative. It is not fit to raise for market hay. It is not fit to raise by farmers who never intend to begin haying until the fourth of July or the first of the week after. It is not fit for dry land. It is not fit for poor land. It is not fit to grow anywhere where you would not expect to get more than one crop a year. That is the negative side of it. It is grass that naturally grows in tufts, inclines to throw out a large number of bottom leaves. It never goes to seed the first year, however early sown. It makes leaves all summer, and does not run up and blossom until the second year. The second year it will be in bloom and should be cut as early as the middle of June. If it stands longer than that it grows hard quite rapidly, and, like any other grass, gets poor if it stands a week beyond its proper time of cutting. When the land gets a little thin, a little poor, it renews its early habit of the first year, making leaves only and not running up any stocks at all; and when you come to cut it, although it may look very well at a little distance, you do not get much. There is another fault. If sown late in the fall, when red-top and timothy would be expected to go through the winter, it will freeze out, and turn white, and not go through the year. I think that is all the fault I can find with it.

Now for a piece of rich, moist, grass land, not too wet, but which ought to be in grass for a number of years, and which you do not want to plow, get that thickly seeded with orchard grass as early as the last of July or very first of August, sowing at least two bushels of seed per acre, which may cost \$2.50 a bushel, putting with it a bushel of Kentucky blue grass, making three bushels, which will cost another \$2.50, and, sown before the first of August, it will make a good strong turf before fall and stand the winter, and the next spring it will be heading out early in June. If it is the kind of land that I am describing it will bear cutting by the middle of June, and in sixty days cutting again, and in about sixty days a third cutting. It was my early practice to cut orchard grass three times a year. Only the first stalk has seed-stalks; after that it is leaf. I know of no hay or anything in the form of hay that ever satisfied my animals as well as

orchard grass. To keep it up the land must be top dressed liberally and often. It is worth cutting to raise five hundred to the acre. Unless ice stands on it in the winter to burn it out (if that is a proper term) it will live I don't know how many years. The blue grass fills in between what might be spaces, and the two of them together give me three crops. My third crop my neighbors say is better than their second crops; and I like it because I can begin cutting in the middle of June, and so I won't be hurried as I would if my grasses were all of one kind. Having different varieties of grass, and having them separate, you can cut each at a proper time.

Prof. S. T. Maynard, of the Agricultural College, Amherst, Mass., was introduced by the chairman and delivered an address upon "Diseases and Insects injurious to our Fruits."

DISEASES AND INSECTS INJURIOUS TO OUR FRUITS.

BY S. T. MAYNARD, AMHERST, MASS.

It is stated by the entomological department of the government at Washington, that the injury to farm and garden crops from insect attacks in the United States amounts to over \$200,000,000 annually, and if we include the loss resulting from blights, mildews, rusts, and other diseases largely due to atmospheric causes and neglect, the amount must be almost incalculable. The proportion of this sum that could be assigned as the injury to our fruit crops is not given, but we know that it is very large, and could we overcome these causes of loss, fruit growers would soon grow rich and the people be easily supplied with an abundance of fruit.

In considering the subject this evening of diseases and insects injurious to our fruits I shall from necessity treat it from experience in an adjoining State. In the discussion of insects it will be from the standpoint of the practical fruit grower, rather than from that of an entomologist. Owing to limited time it will be necessary for me to treat each subject in a rapid way and if I fail to make my meaning clear I hope you will interrupt me and ask such questions as are needed to make it more plain.

Beginning with the apple I shall take up the other fruits in order of importance.

DISEASES OF THE APPLE.

This fruit is generally free from diseases except such as are caused by neglect and by injury from insects and other causes, yet everywhere we see apple orchards dying out. On rich land, where there is an abundant supply of plant food, or where an annual dressing is received from the washing of the hillsides or roadways, or where an annual dressing is applied, trees continue for a long time in vigorous, healthy condition, but this is rather the exception than the rule. Under the exhausted condition of so many orchards, decay begins at some injured point, as where a large branch has been cut away or where an incision has been made by a borer, and spreads rapidly, just as disease spreads rapidly in the animal system under similar conditions. If the trees are in a healthy, vigorous condition and are well supplied with plant food, all such injuries are quickly repaired or covered. We plant orchards and after a few years of care and cultivation expect them to produce paying crops of fruit, and the land to produce a crop of hay, and all without the addition of any plant food; but you may say it does not pay to put manure upon our orchards with apples at from fifty cents to one dollar per barrel. True, but you might get better prices if your fruit were better. Who wants to pay high prices for knurly, wormy fruit of small size, such as is grown on weak, decaying, poorly fed, neglected trees? If the fruit were good, fair, and well sorted, people would use fifty and perhaps one hundred per cent more than they now do, and the price would increase.

Good feeding alone, however, will not keep the trees in a healthy condition. We must fight the hordes of insect foes that attack them, and see to it that they are not unnecessarily mutilated by pruning. I would make it a rule never to use the saw or knife unless there is a positive, well-marked need for their use. These needs are, first, when the branches get so low as to seriously interfere with the cultivation of the land; if the trees are growing where the land is not cultivated I would let the branches grow as low as possible; second, to thin out the branches just enough to allow the pickers to get the fruit conveniently and no more; and, third, to remove dead branches. Whenever a branch is cut off more than one half inch in diame-

ter the wound should be painted with thick linseed-oil paint, gas tar, or grafting wax.

Of the many diseases attacking the fruit which are of a fungous nature, that is, minute parasitic plants, which grow and feed upon the tissues of the fruit, there are two not very well understood forms, one which causes the black spots upon the outside of the fruit and renders it unsalable from its appearance and by checking its growth, and another which causes the brown, bitter spots in many varieties and which renders the fruit worthless for any purpose, although it may look well on the outside. These two diseases and their remedies are not fully understood, but they are known to attack some varieties more than others and to be most abundant upon the fruit from weak, decaying trees. It is to be hoped that the use of insecticides and fungicides may be combined in such a way as to accomplish both the destruction of insects and these parasitic diseases at the same time.

INSECTS.

Of the insects which are seriously injurious to the apple trees may be mentioned first the borers. The round-headed borer (*Saperda bivittata*) makes incisions into the trunk often several inches deep and nearly one fourth of an inch across, and after escaping leaves an exposed surface of tissue which will soon cause decay of much more that surrounds it, and soon the tree is seriously injured. In some sections this insect is very abundant. Its presence in the tree during its early stages of existence may be known by the chips which it forces out from its hole. The trunk should be scraped clean for about three feet, in May, and again in August, then after a few days a careful examination will show the fine, fresh, sawdust-like matter forced out of their holes. The best implement for destroying them is a stout sharp-pointed knife, and a flexible wire for forcing into their holes should they not be found near the surface. The flat-headed borer (*Chrysobothris femorata*), which feeds always near the bark, may be discovered in the same way and be more easily destroyed. It is more common than the first mentioned.

Scale insects are often injurious and cause a weakening of the trees by sucking their juices; the one most common is the

oyster-shell bark louse (*Mytilaspis pomorum*), in form resembling somewhat the oyster shell, whence its name. It is more commonly found upon trees growing in neglect, and is easily destroyed by painting with a very thin coat of linseed oil, care being taken that the oil does not flow over the branches.

In almost every section of New England we find the ends of the branches of our apple trees dying off, and at certain points we find black cankered spots where the injury begins. Upon close examination, especially during the summer, we find clusters of white woolly insects, the woolly louse (*Schizoneura lanigera*), which are feeding upon the juices of the branches they have punctured. It is possible that all of the dead branches found upon our apple orchards are not due to the injury of this insect, but many of them are. The remedy which has been found successful is brushing over the injured spot as soon as discovered with soft soap applied with a stiff bristle brush; a paste or paint of wood ashes used in the same way would probably be effectual if the brush was used freely in working it into all of the crevices of the bark.

The canker worm (*Anisopteryx vernata* and *A. pometaria*) in some sections has in years past destroyed many orchards, or so weakened them by destroying the first foliage that they became an easy prey to disease and decay. The use of printer's ink at the proper time, or the later use of Paris green, renders it possible to overcome them. To be effectual the ink must be put on after the first severe freeze, the last of November, and be kept in a soft condition at all times during very warm days of winter by frequent renewals. Paris green should be applied at the rate of one pound to one hundred gallons of water when most of the worms have hatched out, and again when they have reached one fourth to three eighths of an inch in length. Pyrethrum powder has proved as effectual used in the same way and quantity as Paris green and is perfectly harmless, while much care must be exercised in the use of the latter.

The tent caterpillar (*Clisiocampa Americana*) is also another source of weakness to our apple orchards. In almost every section we find it decorating our roadsides upon the apple trees and wild black cherry, and it is a wonder that they do not increase more rapidly.

But should all the diseases be overcome, and all the insects assisting in hastening the destruction of the tree be destroyed, there remain one or two insects which would render our fruit worthless unless destroyed. The codling moth (*Carpocapsa pomonella*) punctures the fairest fruit, and has become so abundant as to require more serious consideration than any other insect attacking the apple. Its habits are well known, but until recently it has been thought useless to attempt its destruction in any other way than by destroying the wormy fruit as fast as it falls. In the reports of several entomologists in the past few years are recorded experiments with Paris green for the destruction of this insect, and the conclusion arrived at is that by the application of the mixture at the rate of one pound to one hundred gallons of water with a spraying pump, just before the blossoms open, again after the petals have fallen and one week later, enough of the poison is made to adhere to the calyx to destroy a large per cent (80) of the worms. It is certainly to be hoped that this may prove generally as successful, but much depends upon its thorough application. If we can destroy even fifty per cent of the pests it is a great thing for the apple grower. Paris green is a most dangerous thing if used carelessly, but if no animals are turned into the orchard for a week or two after the application, no harm need be feared. The codling moth may perhaps be within our control, but the apple maggot (*Trypeta pomonella*) still stands against all attempts made for its destruction. It is especially injurious to thin-skinned and mild-flavored apples, even the Baldwin being in some cases attacked. It certainly can be destroyed by feeding the fruit as soon as it becomes infected to cattle or swine, and undoubtedly millions are destroyed in our cider presses.

THE PEAR.

None of our fruit trees, except the peach, perhaps, are so liable to be destroyed by disease as the pear, yet when it does escape it lives much longer than even the apple tree. The pear blight, as it is called, is a most dreaded disease, which attacks the trees during the growing season, when conditions are favorable. It is caused by a very minute parasitic plant, which, under favorable conditions, develops so rapidly as to cause the destruc-

tion of large branches and often entire trees in a few days. Like all growths of a similar nature, it requires a warm, moist atmosphere and a host plant supplying food in the proper condition. The germs are supposed to be everywhere; minute dust particles floating in the air, which germinate when the atmosphere is moist and warm, and if they find trees the sap of which supplies food in proper condition they increase very rapidly. It rarely attacks healthy trees, that are growing with moderate vigor in well-drained soil and in full exposure to sunlight and air. Anything that weakens the tree renders it liable to the attack of the blight. If the autumn is moist and warm and the growth is late, or if a late growth is caused by the application of manure in the summer or by late cultivation, the tissues are injured by the cold and are often attacked by the blight. If the trees are neglected or allowed to overbear, if the land is heavily cropped and little or no manure returned, they are very liable to be attacked. In fact, anything that may weaken the tree is sure, sooner or later, to bring it on. This may be contrary to the teachings of some scientists, yet I have never seen a tree killed by blight which had not been seriously weakened in one way or another.

The remedies or preventives are simple and easily applied. First, see that the land is well underdrained, if naturally wet, then manure liberally in the fall or early spring. If the land is cultivated do not stir the soil after August 1, and see to it that the trees are not injured by overbearing, by insects, or improper pruning. With the above treatment I am confident that very few trees will be destroyed by blight. To prevent the spreading of the spores, when trees are blighted the injured branches should be cut off at once and burned. Blight upon the leaves and cracks upon the fruit are caused by fungous growths of larger development than that of the common blight. They grow upon the surface in part and are more dependent upon the condition of the atmosphere, although trees in a vigorous condition are much less liable to be injured, and conditions favoring such growth should be provided as a preventive.

The scab or crack in pears, especially of such varieties as the Flemish Beauty and White Doyenne, is something of the same nature as leaf blight, but perhaps more difficult to control. Good

results have been obtained by the application of potash or wood ashes to the soil in liberal quantities, in addition to the necessary amount of the other elements of plant food for a healthy growth. From the nature of the disease it is hoped that some of the fungicides recommended for the destruction of mildew and rot in the grape, by the department of agriculture, i. e., sulphate of copper, lime, and other substances, may destroy it.

The insects that assist in bringing on diseases of the pear tree are few. Among them may be classed the two borers which attack the apple, and are even more fond of the pear. A very minute little insect, known as the pear-tree psylla (*Psyllapyri*), is, some seasons, so numerous as to seriously weaken the trees. It feeds upon the new growing shoots in the axils of the leaves, sucking the juices out so rapidly as in some cases to cause the branches to droop as if wilted. The insect is so minute as to be scarcely visible to the naked eye, and may be destroyed by washing with strong soap-suds or by the kerosene emulsion sprayed over the trees.

Bees and wasps are sometimes said to aid in the dissemination of the blight by carrying the germs of disease to the flowers, where they penetrate the soft tissues and begin rapid growth.

THE PEACH.

Although not extensively grown in this section, it is a fruit that all are interested in, and which, under favorable conditions, may be grown with some satisfaction probably as far north as this even. A native of a warmer country, it is tender and easily affected by the changes of our climate. The tree is more hardy than the fruit buds, and if planted on high, moderately rich land, with proper treatment it will live many years. The fruit buds are also less injured under such treatment than when grown on less elevated land.

As with the blight of the pear, the yellows of the peach, a disease of similar character, is especially destructive to trees that have become weakened from any cause. Trees affected by the yellows have a sickly yellow appearance of foliage; the new shoots, especially those along the main branches, are small and wiry; the fruit ripens prematurely, and the trees last but a few

years, at best. Taking the proposition as true that trees are not affected by this disease until they have become weakened in some way, let us consider some of the causes of weakness. The peach borer (*Egeria exitiosa*) is a small wasp-like moth that lays its eggs near the ground on the trunk. The larva or worm penetrates the bark and feeds upon the sapwood, eating often a space as large as a silver dollar, and often several may be found in a single tree, young trees being sometimes completely girdled by them. Their presence may be known by the chips which are found in the masses of gum that exude from the injured parts. The trees are often seriously injured by cold; late cultivation, manuring during the summer, or a late warm autumn may cause a late growth that is very liable to injury from severe cold. Summer pruning may also cause a late growth. When the peach produces fruit it is inclined to overbear and thus be weakened.

To keep the trees in as vigorous and healthful condition as possible, they should be planted only on high land well exposed to a free circulation of air, the land to be well underdrained and made moderately rich by the application of manure or fertilizers only in the fall or early spring, and all cultivation to cease after August 1. Ground bone and potash may be considered a special manure for the peach, as they tend to make that hard, firm growth necessary to withstand the winter, but if the soil is poor, enough nitrogenous manure must be applied to produce a moderately vigorous growth. As to the protection of the fruit buds, nothing has been discovered as yet that is very satisfactory, except laying the branches upon the ground and covering with soil. How to do this without injuring the roots is yet a problem to be solved.

The peach tree at best is tender and short-lived, and it is only by the most careful treatment, under the most favorable conditions, that we can expect its cultivation to prove profitable in Northern New England. In many sections we find old trees of natural fruit, growing under conditions of neglect, that have withstood all the agencies which have destroyed the best budded varieties, and something may be hoped from the best of these. They may not be quite as good as the budded varieties, but are of fair quality and have a promise, under favorable conditions, of being more hardy than those on budded stocks.

THE PLUM.

This delicious and nutritious fruit should be more cultivated than it has been in the past, and would be were it not for the diseases and insects that render its cultivation unprofitable.

The black wart or knot on the shoots and branches is a fungous growth, the spores of which begin to germinate in the spring, and penetrating the tissues during the summer feed upon the juices. Its own development and that of the tissues of the plum, in its effort to repair the injury, result in this enlargement known as the wart or knot. Spores are formed during the summer which probably fall off and germinate on other branches, but a larger number are formed later in the tissues of the wart which do not escape until winter. These winter spores may be all destroyed by cutting off and burning during the fall and early winter. The summer spores may be prevented from escaping and the wart destroyed by painting with linseed oil, turpentine, or kerosene when they first burst through the bark. I think linseed oil the best, as both the kerosene and the turpentine must be used more carefully to prevent the destruction of the entire branch, while the oil cuts off the air more perfectly, preventing the escape of any spores, and nearly as effectually stops the growth of the wart. The warts should be painted soon after growth begins in the spring, and again in July, to insure their complete destruction.

The plum curculio (*Conotrachelus nenuphar*) is perhaps the greatest obstacle to the growth of the plum we have. It is a small brown beetle, with prolonged mouth parts, and which most fruit growers are familiar with. It lays its eggs in a crescent-shaped cut which there is no mistaking. The eggs hatch and the larva works in the tissue until the fruit drops to the ground, when it escapes to the soil and undergoes its changes in cocoons made of soil. The insect lays its eggs when the plums are about the size of a small pea, and remedies must be used before they reach this stage of growth. Until within a few years the only remedy thought to be at all effectual was the costly one of jarring the trees every morning for two weeks when the plums were very small, and catching the insects on sheets, and that of planting the trees in poultry yard, when the fowls destroy the insects as

they come from the ground in the spring, and the larvæ when they come out of the fallen plums to enter the soil. Both of these remedies have been found effectual, and the last both effectual and profitable, but in many locations, as upon the lawn or in the garden, impracticable. I was very much interested in an experiment in the use of swine in this way on a recent visit to Ohio. In an orchard of a few trees only were pastured six or eight pigs about three months old, and the proprietor, to show their fondness for the fallen plums, stepped up to a tree heavily loaded with fruit and gave it a vigorous shake, when up rushed the pigs, tumbling one over the other as they do when trying to get to the feed trough, and in a few moments every fallen plum was destroyed. Pork when fed upon the decaying waste of kitchens and hotels must be anything but healthful food, but when pastured and fed upon clean food, becomes wholesome and nutritious and a product that would be called for at paying prices.

In large orchards, or where poultry or swine could not be utilized for keeping down this pest, Paris green has been found successful. It has been found that the beetle feeds upon both the fruit and the leaves of the plum tree and that an application of Paris green in water, at the rate of one pound to one hundred gallons of water, put on with a hand-pump or syringe will destroy it. The application should be made as soon as the blossoms begin to fall, and be repeated one week after. Should rain wash the Paris green off soon after its application, it must be renewed at once.

THE CHERRY.

In many sections of New England the cherry has been almost exterminated by disease and insect attacks. In many places we see a few old trees still alive, with trunks split open on the south side, and if bearing fruit, it is found so infested with worms as to be worthless. The cause of the tree's dying is largely due to the action of frost when the trees have made a late growth in the fall. Like the peach, the wood of the cherry decays quickly when injured, and if the trunk is split open by the frost, or if large branches are cut off, decay spreads rapidly until the tree is destroyed. To overcome this difficulty we must plant in light,

well-underdrained soil, when the growth will mature early and perfectly. We find often the cherry growing by the roadside, with its roots well protected from frost by leaves, grass, etc., and although the soil may be rich from the road washings, the growth of weeds and underbrush is such that the nitrogenous elements are taken up by them by the last of July, so that the wood of the tree matures as well as if it was planted on light soil. Under such conditions cherry trees often grow to great perfection and do not crack. The insect that is the most injurious to the cherry is the plum curculio, already described, and destroyed in the same manner upon the cherry as on the plum. Sometimes the trees are attacked by a disease similar in effect to that of the pear blight, but only when an unusually late growth of the tree takes place.

THE GRAPE.

In the cultivation of the grape we have to contend with early frosts and late frosts, with insect foes and parasites like mildews and rots, and few varieties are able to withstand all these in Northern New England.

We may succeed in growing the vines and by covering them with earth in winter prevent their being destroyed by cold, but up to the present year we have never been sure that the berries would not rot, or the leaves mildew so badly as to fall off, or at least be so injured as to prevent the fruit's ripening. From experiments made by the department of agriculture the past season, it seems reasonably sure that we may prevent the destruction of our crop by either mildew or rot. In these experiments sulphate of copper and lime were used in varying proportions, but the following is recommended for general use: Sulphate of copper, 6 pounds; lime (fresh), 6 pounds; water, 22 gallons. The copper sulphate is dissolved in 16 gallons of water and the lime slaked with 6 gallons. When the two solutions have become cooled they are poured together and thoroughly mixed before using. The mixture was applied by the Eureka sprayer May 29, June 4 and 21, and July 2 and 11. Where the spraying was thoroughly done the vines were free from mildew and rot. This mixture is inexpensive and easily applied, and if it proves as effectual as the above experiments indicate, we may hope to control both of

these destructive diseases. By planting upon high, warm, sandy or gravelly soil with a southern exposure we may expect to avoid the late frosts in the spring and early frosts in autumn which often destroy the crop on low land.

Of insects there is but one that is seriously injurious, — the “rose bug.” This pest appears in such numbers at the time of blooming, as to destroy all the blossoms as they open. If the vines are laid down upon the ground until they bloom, the fruit will be set before the insects get about much, and thus the crop saved. It is claimed by some that it may be destroyed by spraying with Paris green. At the time the Bordeaux mixture is applied for the destruction of mildew if Paris green, at the rate of one pound to one hundred gallons of liquid, is added to the solution it would much lessen the expense, and, I am confident, would destroy the beetles. Much more light is needed on the subject of the use of insecticides and fungicides, and one of the most important works the experiment stations have before them is to determine the best insecticides and fungicides and the most economical and effectual methods of application.

QUESTION : There is one insect that I would like to ask about. There is a little worm that commences at the edge of the leaf; it has a striped back. Of course they are very small when they commence their eating. They eat the entire leaf, and then take another and follow back. I have seen a few of them on my trees.

Prof. MAYNARD : If that is an insect of a black or dark brown color, with spots on the sides, it is the canker worm which I have described. They are guarded against by the use of tar and printer's ink. It must be used as soon as they begin to appear. They may be destroyed with Paris green and insect powder. The insect powder will take off every insect within half an hour. In some experiments we found that nearly all the insects were killed at once. Some of the larger ones attempted to climb the tree again, and we applied the ink. But that one application three years ago has been sufficient.

A MEMBER : I have two pear trees that have black spots come on them; I should like to inquire what to do about them.

Prof. MAYNARD : That is a parasitic or a fungoid growth. It is found especially in seasons when there is considerable cold, damp weather, and the only thing to be done is to cultivate when you see the blight coming on. Have your trees in a healthy condition by the application of manures along in the fall or spring. It never should be applied late in the spring or early summer.

QUESTION : When the bark cracks and separates from the trunk, what is the best thing to do ?

Prof. MAYNARD : That is due to the cold, probably, especially if they are growing rapidly. An overgrowth or late growth leaves the bark in a soft condition, and in freezing that effect is produced. If the crack is bound down and covered with wax, very often it will heal over. Of course there will be that crack that will sooner or later decay.

QUESTION : Did I understand you to say that the curculio was destroyed by birds ?

Prof. MAYNARD : Yes ; and especially by the Baltimore oriole.

QUESTION : You spoke of beetles as insects injurious to crops. Have they ever attacked your apple trees, and particularly the small apples ?

Prof. MAYNARD : I have seen them in some cases upon almost all fruits at times. Some years they will take the plum leaves, the cherry trees another year, and sometimes fruits. Even strawberries have been found with clusters of the beetles upon them, but not to any serious extent.

QUESTION : I find in my orchard that of the variety called Nodheads it is almost impossible to raise apples. I would like to know some remedy.

Prof. MAYNARD : Paris green will probably destroy, where they destroy the tissues ; but the application must be quite thorough.

QUESTION : How would it be with London purple ?

Prof. MAYNARD : It would be the same, and perhaps the cheapest, — one pound diluted in one hundred gallons of water ; not stronger than that.

Mr. THOMPSON : I have quite a large number of trees and the canker worms have come into my orchard. I have known the

stuff that was put on in one year to harden on one side of the tree so that they could go right up over it before I could get at the trees the next year. The next year I took Paris green. I do not favor the idea of going over the trees with printer's ink, and taking so much time in fall and winter and spring. I think it is better to use the Paris green and throw the printer's ink away.

Prof. MAYNARD : It is unquestionably cheaper ; but some people have a prejudice against using Paris green.

Mr. THOMPSON : I would say that I keep swine among my trees.

QUESTION : What causes the plum to decay ?

Prof. MAYNARD : That takes place in moist weather, and especially where the fruit is thick. If it is where the plums will not touch, you may save them. Some years it is almost impossible to prevent their decay. It is possible that these fungicides may prevent that. It is sure death to the spores and the fungous growths, if you can get it in contact.

Mr. CUMMINGS : I would like to ask the speaker if he can explain the secondary blossoming of the pear tree. I have had an experience of that kind, blossoming out in August.

Prof. MAYNARD : We see it every year more or less. Hardly a season passes but that one sees blossoms on the trees a second time. One season some years ago nearly all the trees blossomed in the fall.

Mr. CUMMINGS : This tree that I had went on and matured, and after a while they seemed to ripen and mellow up, but they were not at all like the variety on which they grew, but very rich and juicy and having a flavor quite equal to that of the best Seckel pear. There were a dozen clusters of them on one tree one season.

Prof. MAYNARD : Very often the pear, horse chestnut, and strawberry blossom a second time, under the same conditions, after maturity and a period of rest, and warm, moist weather following.

A MEMBER : I would like to ask the professor if he thinks it possible for apples to become mixed in blossom so as to effect anything like a cross the same year.

Prof. MAYNARD : It would hardly seem possible, yet there are

cases where there seems to be an indication that they are affected by pollen.

A MEMBER: I had about twenty blossoms nearly twenty feet from a Roxbury russet that were affected in that way.

Prof. MAYNARD: There are instances of that kind.

A MEMBER: I would like to ask if you ever knew an instance of a pear tree's blossoming, but never a pear holding on to the tree? A sprout that came up from the tree would blossom but bear no pears.

Prof. MAYNARD: I know no reason why it might not be; there are so many changes going on in the production of fruit. It is possible that a slower growth or an application of a large quantity of potash would cause fruitfulness.

Mr. BASS: Can you tell us what causes black spots on apples, the Fameuse in particular, and the remedy?

Prof. MAYNARD: You mean upon the outside, or in the tissue?

Mr. BASS: On the outside.

Prof. MAYNARD: This was very prevalent a year ago all through Massachusetts, so much so that the fruit was almost unsalable. It is a fungous growth that forces itself into the juices and affects the fruit. Perhaps sulphate of potash may be used to advantage.

Mrs. C. W. Emery, of Canterbury, was introduced and read the following essay on "Home Attractions":

HOME ATTRACTIONS.

BY MRS. C. W. EMERY, OF CANTERBURY.

Mr. President, Sisters, and Friends:

I meet with you to-night, not in any sense to instruct you in the art of home-making, but to suggest and recall some of the duties, privileges, and prerogatives of our position as matrons and maids in the agricultural regions of this grand old State of New Hampshire.

Living, as many of us do, isolated from friends and far from those sources of enjoyment and improvement existing in cities and villages, these topics come next in importance to the ques-

tion of bread-winning. In our homes we must find nearly all the pleasure and joy of our lives. For us are not the social triumphs, the delights of resplendent dress, nor the keen intellectual enjoyment of meeting gifted people. The histrionic art is almost unknown to us, while the sister arts, painting and sculpture, are indeed strangers, and only the simpler strains of music reach our listening ears. In place thereof we have greater opportunities to make homes brighter, happier, better, and more far reaching in their influence than have any other class of women in the State. The most cultured woman in the land can have no dearer privilege, as witness the fact that many of the most renowned women have been home-makers and home-lovers.

Home-making is the woman's especial prerogative. A man can build a house and furnish it, but cannot turn it into a home. What a bear he is when he attempts it, and the home is but a den! But a woman can transform a single room, can give it an indescribable atmosphere called "home." And woman reigns the queen of home by virtue of the scepter love, but it is only in the country home that her sway is undisputed by amusements and temptations. Here the husband or son cannot go to the lodge, the saloon, the club, the theater, the concert, or the lecture, but must, perforce, spend the most of his evenings in a home or in the country grocery. What home-maker need fear such rivalry? We are responsible in this kingdom of ours for our own souls and, in some degree, for the souls dwelling under our roofs. Hence we should put aside all temptation to wrong-doing and intemperance, allow no quarreling, scandal, or even gossip, be so frank, so true, so loving in all our relations, that these sins will find no room in our households.

The ideal home presupposes the presence of children. If they are not in our homes by divine right the sooner we take some homeless child to our loving hearts the better. Let the children early learn the beauty and advantage of learning how to work. We should not leave them uninstructed because it is more trouble to teach them than to perform the work ourselves. Their pride and joy in new-found knowledge, and, later, their assistance in time of need, will be our recompense. The desire to be helpful should be sedulously cultivated in the heart of every child, and

should grow side by side with the desire for knowledge ; the one can in many ways be made to react upon the other and thus induce the vigorous growth of both. The knowledge of a new and more complicated employment may be the reward for simple duties well performed. We must not expect perfection, and must not allow the children to feel that what to them has been a real effort of mind and body is of no actual assistance to us ; for as "the life is more than meat and the body than raiment," so is the child's happiness in a determined effort for helpfulness and knowledge of more account than the material result of such effort. As Mrs. Stowe has said, "First, let us cultivate the grace of silence ; second, deem all fault-finding that does no good a sin ; third, practice the grace and virtue of praise."

We should allow no animal to be neglected or tortured in our kingdom. Let us early banish that instrument of torture, the over-draw check, from the horse when we ride.

It is our duty to give all happiness possible to our households. The happiness of each one is our especial charge. No matter what sorrows may come to us, and they may be many — aye, more than any one can comprehend — we are bound, if we have accepted the position of queen of the home, to lay aside our own griefs and give happiness to all within our gates. This is of far more value than delicious food or fine clothing, and the food and clothing must be made more simple if we have not time and strength for all.

We should make cheerfulness the keynote of home. To do this requires care in many directions. First in our own health and the health of the family. We must study the sanitary condition of our buildings. A little book called "Home Sanitation" should be in every house. Take care of your health to-day and "God will take care of to-morrow." We should spend our strength as carefully as we do our hard-earned dollars. I do not counsel selfish laziness, but we must sometimes spare our hands if we wish to give our loved ones something from our heads and hearts. An overworked, weary woman has little strength for love or learning. Happy is the home-keeper when this fact is recognized by the men-bodies, and they, by a little timely care or help, save hours of hard labor or weariness.

Happy is the woman whose husband enjoys her company in the many rides he must necessarily take about the country. "But," says one man, "my wife will not go with me, she cannot leave her work." She was ready enough to go with him before marriage. Let him ask her as he did then. If she has too much work he should help her. He will lose no time thereby, for it will not take him half an hour to purchase a cigar or a package of tea if his wife waits at the door. Let him try this for six months and note the result.

It is seldom that a woman in New Hampshire need become the household drudge we often see. Glance a moment at the good old times. Our grandmothers cooked, washed, and sewed for half a dozen hired men in planting, haying, and harvesting time, while now two men with machines do as much work. They spun, wove, cut, and made the garments for all the family. We but cut and make with the aid of the machine part of our own and children's clothing. They skimmed the milk and washed a dozen pans, while we cleanse but a single creamery can. Were they smarter or stronger than we? I trow not; but they did not worry over non-essentials, and they did not attempt elaborate cookery. I know a family whose history will illustrate this and some other points which I wish to emphasize. They spent the first seven years of married life in the city, and found themselves worth not a dollar more than at the beginning. The wife's father gave them of his farm five acres of pasture land on one of the rockiest hillsides of Massachusetts, four miles from market and a mile and a half from school. The oldest boy was six years old, the second four, and the third a babe. The mother, a wise woman though possessed of but a common school education, early encouraged the children's interest in all the lineaments of nature. Mineralogy, entomology, and botany opened a new world to her when she found no stone too common, no insect too repulsive, no flower too small, to receive the fullest attention of her mind if brought in by her children. Often were her dishes left unwashed while she studied with them the structure and classification of a strange plant, or the floors remained unswept while she assisted them in mounting some newly caught insect. The childish hands were ever ready to assist so companionable a

mother in the essential work of the household. Collections of specimens were made, and as the boys grew older much of their spending money came from premiums obtained at the horticultural rooms of the neighboring city and at fairs. Their success in finding rare specimens brought occasionally to the little home men and women of high attainments in natural history, giving the children a glimpse of a different society. Friends often found the tiny sitting-room in disorder, but never a frown disfigured the mother's brow or a cross word slipped from her tongue, and in her cheery presence, with not a moment for gossip or even apology, the time passed too quickly for more than a first thought of the disorder. The children went about their daily tasks with zeal, one to the poultry house, one to the garden, etc., because they were taught to take a pride in the results of their labor and were sure of ready sympathy in any childish experiment for improvement. Very simple but nutritious food, simply and regularly served, gave the seven children clear heads and sound bodies, with no trace of dyspepsia.

To-day, after eighteen years of life in the country, they own, instead of five acres, two hundred and five. The little cottage has become a modest dwelling-house, surrounded by beautiful shrubs and flowers. A cottage for the workmen and other farm buildings have been added as needed. The oldest boy is his father's head farmer, and has a wife and child after his mother's own heart. The second boy went to Amherst to work on the college farm, and found that he could take a course of study and more than pay his way as superintendent of the greenhouses. He graduated last June with prizes and an honor. The third boy recently entered Julien's great art school in Paris and finds himself able to do better work than a majority of the pupils. Two girls and two boys, as promising as the older ones, are still at home.

I speak thus fully of this family because I know of their struggle and success. Doubtless there are many in our own State equally successful. It is the opportunity for so much that I wish to impress upon your minds. Who believes that, if this family had remained in the city, those seven children would have all been blessed with robust bodies, strong minds, and clear heads?

Would it have been possible for that mother, amid the distracting influences of city life, to exert such a home influence, and implant so deep a knowledge and love of nature? To have so well taught them —

“The ties of law
That bind the strength of nature wild
To the conscience of a child”?

Would those five boys have grown so generous, so sweet, so strong, and so pure? Would the temptations of the city have left them uncontaminated? You will agree with me that it is not probable.

And now a word to that large class of New Hampshire country housekeepers who are giving their best years to the care of aged parents, while brothers and sisters are in homes of their own. You are performing a sacred task, but you have no right to sink your individuality. You are able to earn your living elsewhere and you should have your business relations as clearly defined as would a brother in the same circumstances. You will lose nothing of love, but will gain respect for yourself and your sex by having your business ability recognized. If you are not fully occupied with necessary cares, by all means take up one of the many specialties now possible to country women, — beekeeping, poultry-raising, making pickles and preserves, the summer boarding house, or the dairy. Begin small and learn your business as you go on from books, from papers, and from your own experience. Life will take a new face, and the filial duties which you have never allowed yourself to feel burdensome will give you new pleasure. You may be laughed at at first, but when you score the first success you will be delightfully surprised at the eager interest of the whole family. When you have established a paying business, — as you will if you bring to it the same ability you bring to your housekeeping, — you will take a sting from the heart of a loving mother, who has cherished a secret grief that her dearest child should sacrifice so much for her comfort. When death claims your loving parents, prostrating you with a grief none can understand, there will be something to claim your attention and after a time make life endurable.

In parts of New England, districts once agricultural are be-

coming depopulated. The buildings tumble down and the forest resumes possession of the field and pasture. They say the most capable, vigorous, and energetic of the sons and daughters leave for fairer fields and brighter skies ; that two classes remain, — the weaker, those not having force enough to go, and those who care for infirm friends till the vigor and force of youth are spent. If this be true, what broad possibilities and opportunities open before the really capable men and women in New Hampshire. Only the rustler can keep in sight of the eager throng of the newer States.

Our eloquent and honored friend has said, "I have traveled beyond the St. Lawrence on the north, the Savannah on the south, and the plains of Kansas on the west, and nowhere have I seen a place where a man, owning his farm free from debt, can obtain so much of happiness as in New England. But what of our intellects? Must these wither while our hearts and hands are fully developed? In the city, minds interested in the same lines of thought gravitate together, and each stimulates the other. We are placed with certain social surroundings, and may lack entirely the stimulus of intellectual rivalry. We must make our mental growth by the force of our own character, shaping it by the deeds we do, the thoughts we think, and the books we read. In this era of cheap printing, books are accessible to every one. Not the number of books we read but the character of those studied is of importance. Not having access to large libraries, we have not the temptation to literary gluttony which ruins the minds of many city women and girls. The joining together of several families for the purchase of new books and periodicals is practicable, not only increasing the available reading matter but inducing an invaluable social discussion of new topics. In the choice of new books, the reviews in the standard newspapers are excellent aids.

The only society prominent in New Hampshire agricultural circles is the Grange. This is doing more for the social, financial, and political advantage of country women than any other agency, and it should be ardently supported by all who desire the farming community to take higher ground. All honor to the woman who counseled the admission of women, and high honors to the wise men who heeded her counsel.

Not least among the privileges of New Hampshire women is the school franchise. This gives us hold on a lever that can raise the whole politics of the State. Emerson says, "We shall one day supersede politics by education." Our Legislature granted us the highest and broadest political privilege first. We can wait patiently for municipal and national suffrage. It will surely come if we stand upright on our present footing. To us who really seek for reform in intemperance, gambling, social impurity, and the laws relating to criminals, this granted right is of inestimable value. We cannot make the laws or vote for the law-makers, but we have the training of the future law-makers in our homes, and can exert our full influence in school matters. A Catholic has said, "Give me religious influence over a child during the first ten years of his life and I'll make a Catholic of him for life." Give me the home and school instruction of a true-hearted boy till he is fourteen years old, and I will trust him to vote right. But, you say, mothers have always had the home teaching of the law-makers and yet crime is rampant. Here is the point of advantage at the present time. Women may now say that moral instruction shall be given in school, and that the less fortunate children of her neighbors shall learn the iniquity of intemperance and immorality and the blessing of temperance, health, honesty, and purity.

I was lately interested in the talk of a young child concerning a temperance lesson given at school. After discussing the effects of intemperance, physically and morally, he closed by saying, "I never mean to taste liquor and then I shall never want it." Of more value than a hundred temperance lectures is that one lesson in school.

The children from those homes where brute force rules see women having equal credit and command in school affairs, and they learn a respect for moral and intellectual force that increases the dominion of the true-hearted woman.

The education of our children is an important question in country life. It has become a recognized fact by those who have to do with the grading of schools, that a child from the country between the ages of twelve and fifteen will soon outstrip those of equal rank by examination from the city schools. He will lack

at first in the manual part of his work and in rapidity and exactness of computation and expression, but his power of thought and comprehension soon gives him the advantage. Nor should the country schools receive any credit for this; they are poor enough we all know. It is more his home tasks, his material surroundings, the constant phenomena of nature going on around him, that stimulate to inquiry and thought. The dealing with substance more than words, with objects more than persons, gives the child power of thought but not expression. A sage has said, "Much of a boy's education comes on his way to school from the shop windows." How much wider the windows for the country boy, if his eyes are but open to look therefrom!

But we women can do much for the improvement of our schools. There are but few towns where a determined effort by a few voters might not result in giving every child in town the opportunity of from twenty-eight to thirty weeks of school a year, a gain of more than fifty per cent. This means more competent teachers and better school work. It seems to me that this school law, making it possible for those children residing in the remote regions to have equal privileges with any in the town, has removed the strongest objection to farm life. I hazard the prediction that in those towns where it is wisely administered it will make hundreds of dollars difference in the value of the remote farm within the next ten years and fewer farms will revert to the wilderness. As women interested in the financial success of our husbands, as women interested in the intellectual standing of our town, as women interested in the education of our own and our neighbors' children, it is incumbent upon us, and we have no right to shirk the duty, that we think and act in school affairs.

The charity, kindness, and hospitality of country communities add to the charms of farm life. In a school of forty children, over one fourth are orphans given homes in families who receive them, so far as human nature can, into the place of own children. If city households did as well there would be no such growth of criminals and paupers in our land. Said a noble matron as we discussed means of help for a family stricken

by death and disease, "Our people always have their hands full of work, but in case of need they find some way to render assistance." I have seen a poor French family tended day and night for weeks, food, clothing, and nursing freely given, every family taking part in the kindly charity. In the city they must have perished or been separated in public institutions.

And so I say, that for a growth of Christian character, the grace of charity, patient continuance in well doing, purity, peacefulness, and contentment there is no place like the New Hampshire country home.

MR. W. D. BAKER: I suppose you have heard of such a thing as a surprise party. I am the victim of one to-night. I wish to express my hearty accordance with the sentiments of the lady who has so ably addressed us this evening. If there is one thing that is necessary in New Hampshire, and not only necessary in New Hampshire but in our neighboring States, particularly in our neighboring State of Vermont, as the last census shows, it is that our homes be made attractive, so that our children will stay at home instead of migrating to other States, and thus sustain the reputation that we have had of being a successful farming community. Go through our farming towns and you will see large houses that show every evidence of decay; padlocks on the doors, windows boarded up, or without a pane of glass, and sometimes the sashes broken; and you will find in many of our agricultural towns a population which each year grows less. Now, why is it? Is it because farming in New Hampshire does not pay? It seems to me that that cannot be the reason, or the only reason, because Mr. Cheever has shown us to-day conclusively by figures that such is not the case; and if I remember correctly, he stated that he knew of no better place for a man to be successful in farming than here on our New Hampshire farms. We must look for the reason in the fact that our homes are not made attractive. The boys go away to other States, or go West. They do it because farm life has been made a drudgery. It is too often the case that the boy's steers become father's oxen, and the money goes into father's pocket. I think we ought to make home so pleasant that the boys will not care to spend their evenings at the grocery. Give them some chance on the farm. Give

the boy, perhaps, a calf or a yoke of steers, and give him to understand that he is to be accountable for them. Give him some plot of ground. Make him attend to his accounts. Make him interested in the farm. Let him feel his importance, instead of feeling obliged to run at every one's beck and call. The same may apply to the girls. I have taken pains to visit among our families and have been curious to inquire and learn why attendance at school was at so low an average, and I hear grumbling and complaining from the girls, and how many girls I have heard say, "Oh, how I hate to wash dishes!" And they won't do it if they can help it. Is it not true that home life upon our farms might be made much pleasanter for them? Perhaps then they would be a great deal more contented to stay at home. There is another thing to it. If these girls are not contented with farm life, do you suppose they will be contented to be farmers' wives? If they are not contented to be farmers' wives, how long do you suppose the boys are going to stay? Therefore I say I am in full accordance with the sentiments expressed by the lady who has addressed us this evening, and I hope each and every one of us will take home as many of these sentiments as possible, and that we shall all remember to do all we can in making our homes pleasant.

Dr. TOWLE: I do not feel competent to talk upon this question. It is a question that really involves so much that I feel my inability to discuss it. The position that we occupy as husbands and fathers to our families, the position that we occupy relative to our better half, is a position that is so responsible, and, in my opinion, is a position that, as a whole, is so far from being sustained as it ought to be by farmers, that I admit that I am not capable of discussing it. I can simply state something of my own position. I do not wish to speculate in this matter. When I came into the country I brought a wife and family with me. We came there because circumstances required it. My lot has been such that I can make my life one of more or less pleasure, and the change was not to me so very undesirable; but with my wife it has been a different thing. My wife, being upon a farm, seemingly has been obliged to be shut up within four walls. All society of the place in which I live seems to be such that the

ladies are required to be at their homes. Perhaps I can explain that to you by saying that a great many of the ladies in our section are obliged to run sewing-machines and make ready-made clothing, so that farmers can pay their bills; and the result is that society is broken up. It is not what it was years ago. When I was a boy, ladies used to take their knitting-work and a whole neighborhood would congregate in some neighbor's house and there was social enjoyment.

Now the farmer's wife is an individual subject, and if she cannot find things in her own household for enjoyment she must go without. Hence the responsibility that rests upon us as head of the family to see whether these opportunities for enjoyment are afforded. Now, if our time and attention are entirely taken up by our farm-work, and we give no attention to the indoor life, can we readily conceive how our wives fail to suffer by it? I was glad to hear this paper here to-night. I expect to have an opportunity to read that paper in print hereafter, and I know that when my wife reads it she will sympathize with the sentiments which have been so well expressed. I hope every one who has heard the paper will take the ideas to his own home and heart and make them practical in his home by devoting more time to the happiness and welfare of his family.

President HUMPHREY: I agree with the lady who read the paper. It struck the right chord exactly, and I want to back it up by a long experience of life. I lived with my first wife fifty-three years, and during that time there never was a wrong word between us. I did what I could to make everything pleasant, and she reciprocated in all my plans of life. And, further, I am indebted to her influence for my success in life, and I thank God for giving me such a wife. I tell you, ladies and gentlemen, it is no small thing to have a right kind of home. It is everything to us, and we are indebted largely for our success in life to home influences. I want to say further that I was never from home evenings except upon business. I made my home the place to go to when I was at leisure, instead of club or billiard rooms, for I always felt that my wife was entitled to my company for all anybody else. When I traveled on pleasure or on business she always accompanied me when it was convenient to do so. She was a

woman that did her own work when well, for she believed, as I do, that habits of industry are the true source of enjoyment in life. Perhaps I ought to mention the sequel in my own experience. On losing the companion of so many years of my life, I felt the great loss and I was fortunate in finding another lady that was ready to join hands with me to continue the home that my first companion had left to join her friends that had gone before. In doing so I feel that I am very fortunate in my choice, for she has all the elements to make a home as the speaker has described in the admirable paper just read.

The SECRETARY : I suppose that we are all thinking that the lady who could write such an excellent paper must have an excellent husband. Now that is the fact, and I know that the husband is here to-night, and, Mr. Chairman, I request you to call on Mr. C. W. Emery for remarks.

Mr. EMERY : It is rather my opinion that if the family has made a good impression this evening, I had better keep still. Perhaps it might be wise for me to say that I fully agree with the sentiments of the paper that has been read. Somewhere about thirteen years ago, I think, I was fortunate enough to take my daily ration of chemistry in this very room, and I look back to that time with a great deal of pleasure. It gives me a great deal of pleasure to meet farmers, New Hampshire farmers, and perhaps farmers from other States, in this room to-night. I can recollect the time, and probably most of you who are present to-night can do the same, when a company of farmers in this classic town would have been something of a wonder and surprise ; but somehow or other the years have proved that even farmers may know something. Somehow or other the course of events has shown that farming requires something besides an ordinary capacity. You know it used to be said that any fool could be a farmer. If a man had three boys, and one was smart and bright and full of mischief, they would make a lawyer of him ; if he liked to torment the flies and kittens and cut up such shines as that, they would make a doctor of him ; and if he was particularly good they would make a minister of him ; if he did not know anything in particular, they would keep him at home on the farm. I don't wonder, under those circumstances, that farming should fall into

disrepute. Nobody wonders at it. But the longer I work on the farm, the more I see of the working on the farm and the diversity of the occupations connected with the farm, the more and more firmly I am convinced that it requires more brains and more good common sense and more education to run a twenty-acre farm in the State of New Hampshire than it does to run any other business under the sun,—that is to say, to do it properly and profitably, for the business of farming embraces something of all other kinds of business. Now that may seem like a wild statement, but I think that you will find that it is a true one nevertheless. I want to say just a word in behalf of an organization that exists in this State, and which is represented in this good old town of Hanover, and which has made rapid progress here, and to which some of you may belong, and that is the Grange. I am not going to contend that the Grange is everything, that the Grange made the world, but I am going to say that I believe no influence has existed yet that has done so much and is doing so much for the elevation and education of the women of this country as the Grange. It is bringing the women of this country to the knowledge of the fact that a woman does know something after all, and that she is no longer to be the household drudge that she has been in times past. I can see in my short experience a wonderful change for the better in this respect. I can remember (and it was not so very long ago) when if a woman spoke in a church meeting she was commanded to sit down by the reverend minister, when the chances were, ten to one, that the exhortation she could have given at that time would have saved more souls than he possibly could have. [Applause.] I can remember when the presence of women in a meeting of this kind would be a signal for some disorder, and it would have been best for her to get up and leave. I can remember the time when her presence in school meetings would have been scouted at; and she has had this franchise but a short time. But I think I can see a difference in the town in which I live; I know I can. And so I say that the farming community is coming to realize the fact that farmers' wives have some capacity after all, and I am very glad to know that that is the fact; or, rather, I am glad to know that my brother farmers are beginning to respect their wives, their sisters, and

their daughters. I am not going to contend that all the common sense possessed by women is possessed by farmers' wives or by country women, because I know a great many sensible women who live in cities; but I do contend that country women are not to be despised. Although, perhaps, they may not be so richly endowed with the showy graces, their hearts are just as true, and their heads, if they are not made household drudges, are just as clear, their thoughts are just as pure and as high, their lives are just as worthy of imitation as those of any women in the world.

Mr. W. F. DANIELL: I have enjoyed this paper very much. I am reminded of what a noted writer said, stating in a very few words one among other things that are very good. The writer is Dr. Holland, better known, perhaps, as Timothy Titcomb, in his book, "Bitter Sweet." He said that it was one of the wisest of wise provisions that his wife was the best woman in the world, and I think you will find but very few men who want to trade off their own wives. The author says, he was reminded of what he read not long ago. He said he read a story about the creation. He said, as the story went, that when the world was made and man was created out of nothing, the man was lonesome; a good deal like a man waiting for a train of cars and unable to smoke; he did not know what to do with himself, and it was decided that woman should be created. A precious jewel, she could not, like man, be manufactured out of nothing. It was decided, as the story went, to take from Adam a cutlet, a rib, and it was taken, and woman was made; it was considered the grandest masterpiece of work ever performed, considering the small amount of raw material consumed. She was presented to the man to see how he liked her, not how she liked him; but he liked her, and I never blamed him. "As the story went in the book I read," says the writer, "they were put into a place called the Garden of Eden, said to be a beautiful place, with beautiful trees bearing beautiful fruit, and one tree bearing more fascinating fruit than all the rest, and from that tree they were forbidden to take under any circumstances. But they did take, and I never blamed them," said the writer, "and if I had been there that tree would have been full of clubs in less than fifteen minutes." [Laughter and applause.]

The meeting then adjourned.

LITTLETON.

An institute was held at Littleton on Tuesday, March 5, at which Messrs. Lyman, Whittemore, Swasey, and the secretary were present. Mr. C. W. Bedell, master of the Grange, called the meeting to order, and Mr. Swasey, the county member, presided. The subjects presented were "Agricultural College and Experiment Station" by Mr. Whittemore, whose address appears in this report; "Dairying" by the secretary, and "Corn Culture" by Mr. Lyman. The day was unfavorable on account of a severe rain, yet a fair attendance was given and a good degree of interest was manifested in the exercises.

STRAFFORD COUNTY.

STRAFFORD.

The first day's session of the Strafford county institute was held at Strafford Corner, Wednesday, January 23; Lucien Thompson, the county member, presiding. There were also present Mr. Philbrick, of Belknap county, Mr. J. G. Tallant, of East Concord, and the secretary. Chairman Thompson opened the afternoon session with a talk on "Poultry Raising," giving in detail his own experience and showing profitable returns from his poultry yard. The points essential to success in the business were pointed out and the characteristic features of the different breeds explained. He advocated the production of both poultry and eggs, and emphasized the importance of regularity in care and feed. A general discussion followed and much interest was manifested in the subject.

Mr. C. H. Waterhouse, of Strafford, president of the New England Creamery Association, was present and was called upon by the chairman for remarks on the subject of dairying. Mr. Waterhouse gave the result of several experiments in various lines of dairying, and was questioned quite freely at the close of his address. A discussion, mainly in regard to the different systems of raising cream, was participated in by the speakers present, and which continued until time of adjournment. The members

of the Board and invited guests were escorted to the dining-hall below, where an abundant and appetizing supper had been prepared by members of Crown Point Grange, on whose invitation the institute was held at this place.

The evening session commenced at 7 o'clock, at which time an audience had assembled filling the hall to its utmost capacity. The secretary was the first speaker, upon the subject of "Butter Making," and spoke for about an hour on this important branch of dairying. Numerous questions at the close denoted the deep interest taken in this subject.

Mr. J. G. Tallant was the next speaker, on "Breeding for the Dairy." He commenced by saying that the cow is a machine for making milk and butter, and is the key to successful farming in New Hampshire. Different breeds of cows are required for different purposes. For the production of milk the Ayrshire or Holstein is the best adapted. The Jersey or Guernsey is recognized as the ideal cow for the production of butter. The speaker advised farmers to raise their cows, as by proper selection in breeding a superior animal can be produced. He would select a pure-bred Jersey for the sire, and the producing capacity of the cow raised would be largely increased in the first generation. He did not advise crossing the Jersey with the Holstein or Ayrshire, as they were distinct breeds and bred for different purposes. Breed for an object, and continue to improve the progeny by judicious selection. Quantity of milk can be increased easier than quality. Mr. Tallant is one of the most successful Jersey breeders in the State, and his familiarity with the subject is recognized wherever he is known.

Mr. Philbrick followed upon "Feeding for Milk," giving in his address the result of many experiments in this direction. He advocated the feeding of ensilage and explained the working of a Shipman kerosene engine which he uses for cutting ensilage. The best grain ration, after seventeen years of experimentation, he found to be roller-process bran, corn and cob meal, and cottonseed meal mixed in equal parts by weight. His cows gave him a net profit of \$22.50 per cow over all expense of feed. His address occupied about an hour and was given close attention throughout. The institute was closed at a late hour and regarded as one of the most successful of the season.

MADBURY.

The second day of the institute was held at Madbury, and the exercises were practically the same as those at Strafford on the preceding day, with the addition of a re-enforcement in the person of Hon. Warren Brown, of Hampton Falls, president of the Board of Control of the New Hampshire Experiment Station, who spoke upon "Corn Culture and Ensilage." As on previous occasions, the subject of ensilage was given close attention and there is evidence that the silo system of farming is on the increase in the State. Numerous questions were asked on the subjects presented, and the institute was reluctantly drawn to a close at a late hour. The Board has usually been fortunate in its appointments in Strafford county, and this institute was no exception.

CHESHIRE COUNTY.

KEENE.

The institute for Cheshire county was opened at Keene Wednesday, February 6, President Humphrey presiding, who discoursed briefly on the work of the Board for the eighteen years since its organization. He also spoke well of the Grange. He spoke of the silo as an adjunct to good and profitable farming, and the science of feeding, and dairying. He also reviewed the improvements in the different specialties in farming. He objected to the too general practice of taking money out of the farm and investing it in other places.

Mr. Charles McDaniel, of Springfield, was introduced as the next speaker. His subject was "Benefits of Organization." He referred to municipal and other organizations, to medical societies, ministers' meetings, and manufacturers' organizations, some of which were enumerated. He spoke particularly of marble work and some other classes of manufacture. He thought that farmers should organize as well as others. He spoke of the good done by the Board of Agriculture since its organization, of the farmers' clubs and the Grange, incidentally referring to the State Grange Fair and Grange Insurance Com-

pany. He gave figures showing the low rates of insurance given farmers in this way.

The next speaker was Rollin C. Smith, of Pittsford, Vt., member of the Board of Agriculture of that State. Subject: "Care and Breeding of Dairy Stock." In New England, he said, dairying is comparatively a new business. In Vermont the business was formerly sheep-raising, which had reached a state of great perfection. Just the form, size, and pattern that was wanted had been given the sheep, until the Old World had been beaten by New England sagacity. He didn't know that we should be any better off than when the sheep business was good. As the price of wool and of sheep went down, the sheep business went to the wall and Vermont farmers had to cast about for something else to do. It was no small job to change buildings and everything. At present the average cow is too low in her products — about 130 pounds of butter, in Vermont. This would not give a man a living, even at 40 cents a pound. Cows should be bred and reared for better results than this. Care should be used in getting the foundation of a herd, as 25 per cent of the cows ought not to have been wintered, and 10 per cent of the dairymen ought to go out of the business. He would always breed from thoroughbreds. In Addison county, a Mr. Douglass made his herd average 325 pounds last year. When asked how it was done he said, by breeding. Another Vermont farmer, he said, was making 290 pounds of butter per cow. When asked how it was done, his answer was the same,—breeding. Whichever breed you choose make it your point to follow its characteristics closely, and select sires from the best families giving what you want in long lines. Heifers can be spoiled with either too much or too little feed. Calves should be fed lightly at first and then increase. Their digestive organs may be upset by overfeeding while young, and they never recover from it. Calves cannot be fully developed in the barn; they need exercise, either in the yard or pasture. In winter they need sunshine and good early cut hay. The only objection he had to winter dairying was that he liked spring calves best to raise. When they were once well started he would keep them at their milk for four months. After they are a year old they

should be tied up, and fed and handled like cows. He would card them towards spring and handle their bags and teats, so that they would not be vicious.

He thought Vermont and New Hampshire bought too much grain. He liked the position of Chairman Humphrey on the corn question. He wouldn't care if these two States were walled in with a wall like that of China, so far as buying grain was concerned. He believed we could raise our own if obliged to. He would keep stock warm. The time for cold barns had gone by. Nails, boards, and building paper were too cheap to have cattle suffer. He would feed regularly and but twice a day, as cows need time to rest and remasticate their food. He would turn to grass early in spring before the green grass was much grown, so that the change would not be too sudden. In summer he would begin to feed the cows hay as soon as they failed at all. He would be glad to feed rowen that had been kept over if possible. He would keep his cows in the stable at night rather than turn them to pasture. When they come from the pasture cows should stand a little and get quiet before milking. For soiling he liked the Evergreen sweet corn. He formerly sowed broadcast but prefers to have the corn ear, and cuts it when large enough to roast; while he left his fodder in the field even till snow came, if well put up. He believed the silo had come to stay. When fully at the barn it pays to feed grain. More cattle are injured for want of grain than by the use of it. He fills a sugar barrel with ears of corn, and then, before milling, he shakes in all the barley he can. He thinks the cob assists in digestion. He believes fall and winter dairying best. Cows will make as much butter in September and October as in June. After November it is more expensive, as grain must be fed. A good 800-pound cow ought to make 1 1-2 pounds of butter, consume 7 pounds of grain, and give a profit of 30 cents, daily. These cows, well fed, are almost equal to spring cows, when they go to grass again in May and June. Then their two months of rest come in July and August, when the weather is bad and the price of butter low. He regards fodder corn, well shocked, as very good fodder, only there is some waste. There is less waste and more expense in the silo. In answer to questions he said he had poor

success in doctoring a real case of garget, but he has sometimes remedied defective teats by the use of a plug. Sometimes this did not avail anything. He fed some cottonseed, but preferred to mix with shorts and some cob meal to balance the ration. He liked gluten meal as far as tried.

At this point adjournment was made until evening. Although the weather was severely cold a good audience assembled at the evening session.

The subject of "Fruit" was candidly presented by J. S. Perry, of Rindge, member for Cheshire county. He referred in his opening remarks to the low price of apples but said that one would have to pay a man something for a really good apple, in his nearest city market, if the man was known to raise good fruit. He spoke of the rash purchases and ventures by those who go into fruit raising without sufficient consideration and preparation. He would not object to New York trees, especially if properly set. All the land should be in good condition and the roots properly spread out and induced to spread out of the place in which they were set for their nourishment.

He spoke at some length of the troubles coming from bad location, neglect, borers, mice, and caterpillars, and suggested practical remedies and attention. Trees should be visited for mature borers in spring, and for the young, which are found near the surface, in August. Begin to prune early, in fact, when setting rub off all buds not needed, or cut back one half or more of the top. Shield rapidly growing young trees with two clapboards set on the sunny side of the trunk. He placed the best kind of Baldwins, Roxbury Russet, Rhode Island Greening, and Talman Sweet foremost as winter varieties. He did not speak well of the Ben Davis, and did not succeed as well as some with the Northern Spy. He spoke well of the King of Thompkins County, although he had but few bearing trees. For summer fruit he mentioned the Sweet Bough and Gravenstein, the latter for cooking. Cheshire county had plenty of good lands for orchards and he believed there were good prospects for painstaking fruit growers; but don't try to set orchards on wet lands, for such are not adapted to the apple.

Mr. Philbrick, of Tilton, then spoke nearly an hour on "Feed-

ing for Milk." This talk, as usual, was well received and was followed by a good deal of private talk in the hall after the meeting was adjourned. No opportunity was given for questions, the chairman being obliged to announce the next speaker, Hon. John D. Lyman, of Exeter, member for Rockingham county.

Mr. Lyman spoke upon "Corn Culture," with his usual interest and earnestness. He urged growing more corn in New Hampshire and advocated storing it in the silo. He gave in detail the most approved methods of culture and advised farmers to cultivate corn more by horse power and less by hand. The statement that the hoe handle had driven many boys out of New Hampshire was greeted with applause.

This closed the exercises of the evening and it was claimed by those present that this was the most successful city institute ever held by the Board. The attendance and interest were, no doubt, largely due to members of the Grange, and the personal interest of Mr. S. F. Merrill, master of the Grange, in particular. Mr. Merrill is an enthusiastic farmer and music teacher, and the meeting was enlivened by well-executed vocal and instrumental music under his direction.

WALPOLE.

The sessions of the second day of the institute were held at Walpole on Thursday. In the absence of Chairman Humphrey, who was obliged to return to Concord, the secretary called the meeting to order and spoke briefly in regard to the general condition of New Hampshire agriculture. Mr. McDaniel followed with a talk upon "Benefits of Organization." His remarks to some extent were the same as yesterday. He did not believe much in special legislation, but in general laws, principally. He however thought if others had special legislation farmers had a similar right, as they certainly paid their part of the taxes. He referred to the Grange organization, which he claimed extended further than that of other farmers' organizations. He referred especially to the educational work of the order and other matters touched upon at Keene.

Mr. Rollin C. Smith, of Pittsford, Vt., next spoke on "Care and Raising Dairy Stock." A farmer should raise his own stock. He has Jerseys, although not thoroughbreds. He would not care to make any change by crossing, and so spoil a good thing. Pedigree was a good thing, but he would like to see or know the ancestors if possible. Our Vermont pastures are going down, down, down, and growing up to bushes. If yours are not better I pity you. You cannot have a good cow unless you have a good feeder. Two quarts is enough to commence with for a small Jersey calf. Sour milk is all right after calves are six weeks old. Calf skins are not a legitimate dairy product, and it is time it should be understood. We feed grain two hundred days a year, and hay is the king of Northern New England. He had followed barley with rye sowed with grass seed the 5th of August, as an experiment. He intended to cut it just before it headed next summer. First the man, next the cow, and third the feed, in dairying. In answer to a question from Mr. Gerrish, he said he sowed two bushels of rye to the acre and would sow more next time. He sowed a half bushel of timothy with clover and red-top. Mr. George B. Williams was called, and asked Mr. Smith if he would not prefer the cows to have the grain ration when turned out thus early. He answered yes, if he had the stock worth enough. If he was to grain heifers he would feed shorts and oats.

Lucien Thompson, of Durham, member for Strafford county, spoke upon "Poultry on the Farm." Among other points made he said profits depend on good management, cheap buildings, a sunny exposure, ventilation, a good supply of dust and gravel, plenty of shells, and a variety of green food, also a little salt. He gives shorts in the morning and whole corn at night. Fattening fowls should be confined. The Plymouth Rock is a good all-purpose fowl. No matter if a little Brown Leghorn blood is used in crossing. He uses the manure for top dressing instead of in the hill. Feeds small chicks carefully and gives skimmed milk. His fowls average to consume one and one half bushels of grain a year each. Leghorns are too wild for him. He likes a dark colored egg and gets two cents a dozen more for them. Cut off a sick hen's head and save the time that would be spent on her in caring for the balance. He figured \$182.62 returns on an in-

vestment of \$57.25 worth of fowls, and an income of \$303 for \$120 of expense in round numbers. He believes that the egg food that he buys pays. Does not think that the Plymouth Rocks eat any more than Leghorns, the Leghorns are so active. Would dispose of hens in good season, perhaps at one and one half years old. There is more danger of getting the old hens fat than the pullets. He doesn't care for pure-blood fowls. They pull feathers where they do not have salt and meat scraps. Would mix the salt or dissolve in water.

Mr. J. S. Perry, of Rindge, was the next speaker. In addition to what the speaker said at Keene he spoke highly of ashes and various forms of potash as dressing for the apple. If you don't prune a tree you can never get into it to pick apples, and if you could they would not be worth picking.

Mr. Lyman said that an apple may be very good in one place and poor in another. Mr. Lyman then gave his talk on corn growing. He believed that corn growing had increased in New Hampshire. Contributing Indian corn to the world was one of the greatest things America ever did. He said that butter and all beef products were but the sunbeams drawn from the skies by Indian corn, and he applied the simile in many ways to the enjoyment of the intelligent audience present. Indeed, in corn there was cash,—cash to clothe and educate the children. He would harrow a crop of corn after it came up, and he wouldn't plow the ground until the green grass grows, as the fermentation would make the sward rot and become mellow for the corn roots. He would harrow corn rather than drive the boys out of New Hampshire with the hoe handle. New Hampshire farming is to advance largely by raising corn for the silo.

This meeting was well enjoyed by somewhat smaller audiences than at Keene, the subjects presented being mainly the same, with the exception of Mr. Thompson's poultry talk. Walpole is known as one of the best farming towns in the State and always gives intelligent audiences.

SULLIVAN COUNTY.

LANGDON.

The institute for Sullivan county was held at Langdon, Friday, February 8. The representatives of the Board present were Messrs. McDaniel, Perry, and Thompson, J. L. Gerrish, of Webster, and the secretary. The institute was held here on invitation of the Farmers' Club, which is well sustained, and at present under the leadership of A. S. Cram, president. "Sheep Husbandry" was the leading subject of the afternoon session, opened by Mr. Gerrish in a half hour's talk, followed by Mr. McDaniel and others. The speakers were asked many questions and a deep interest was manifested in the discussion.

"Poultry Raising" was discussed by Mr. Thompson, who was also questioned at the close of his remarks from all parts of the house. Mr. Perry was closely followed in his talk upon "Fruit Culture," which was much the same as given at the previous institute.

The seating capacity of the hall was taxed to its utmost at the evening session. Mr. McDaniel spoke upon "Benefits of Organization," and the secretary upon "Private Dairying." The attendance and interest at both the afternoon and evening sessions were very gratifying to the speakers and made the institute a success.

HILLSBOROUGH COUNTY.

MILFORD.

The institute for Hillsborough county was opened at Milford Wednesday, February 20, and we publish the report of the same which appeared in the "Nashua Daily Telegraph" on the following day:

"The Grange was called to order by the master, Addison Peabody, who stated that, by invitation of the Grange, officers of the State Board of Agriculture were present for the purpose of holding a session of the Hillsborough County Agricultural Insti-

tute, and introduced State Secretary N. J. Bachelder, who in a brief way explained the work of the Board, and called upon Hon. Joseph B. Walker, of Concord, who gave an interesting talk upon the formation of the soil. (The address given by Mr. Walker appears elsewhere in this report.) Mrs. Charles A. Richardson then favored the audience with a song, and Mr. Bachelder took up the subject of dairying, which he handled in a very able manner, closing with suggestions upon building and maintaining silos, in which he is a firm believer. Hon. D. H. Goodell, of Antrim, then took the floor and spoke briefly upon the question of silos, favoring those built of wood rather than those of stone or cement. In closing, he urged the young people to stay upon the farms, or at least to stand by the old Granite State, saying that while all had heard of the Pillsburys who had gone from New Hampshire to become millionaires in Minnesota, there was no one to tell of the hundreds who had gone West with equally bright prospects, who had died in poverty or utterly failed in life, when by remaining at home and making the same efforts success might have been attained.

“The evening session was called to order by Mr. Bachelder, who gave a brief sketch of the history of the Patrons of Husbandry from its first inception in Washington, some twenty years ago, by seven men, down to the present time, stating that now the order had a foothold in about every State in the Union, with a total membership of 650,000, while in this State there are 105 Subordinate Granges, with a total membership of over 8,000, a gain of 1,000 during the past year, during which time a mutual fire insurance organization has been formed, which now, at the end of eight months, has issued policies covering over \$500,000 worth of property and has not lost a dollar; the Grange also has a life insurance company in active operation. For the past three years a state fair has been held at Tilton with uniform success, paying all expenses. In conclusion, Secretary Bachelder urged the members of Granite Grange to continue the good work of the past year, and introduced Prof. G. H. Whitcher, of the Experiment Station, Hanover, who held the close attention of the audience for the remainder of the evening.

“Taking for his subject the problem of stock feeding, he said

that the farmer who would reach the best results must unite theory and practice, must inform himself upon the relative value of the different kinds of feed as shown by chemical analysis, illustrating his remarks by showing the results of analysis of a stalk of Western corn weighing, when cut green, with the ear formed, but in the milk, five pounds; giving the exact proportions of starch, sugar, oil, and albuminoids, shown in different vials, with the value of each for feeding purposes, either with a view of producing fat, milk, or muscle for working purposes. He then showed upon a chart prepared for the purpose the actual proportion of each contained in the different kinds of fodder used in the State, while upon a second chart were recorded the daily rations which should be given for producing the best results in work, driving, fattening, or for milk or butter.

“The purchase of corn meal for fattening or feeding with hay in any way was criticised; Prof. Whitcher believing that many of our farmers attach an undue value to meal for those purposes which an analysis would not warrant. He recommended giving a daily ration of cottonseed meal (new process), gluten meal, and shorts or middlings, with hay at least part clover, and corn stover, this being a good feed for producing milk. In his own practice at the station he gave cows in milk, averaging 1,000 pounds' weight, at the rate of three quarts of cottonseed meal daily with corn stover and hay, clover being the best. He advocated raising more clover, and oats cut when in the milk, with less herd's-grass and corn meal. His address as a whole was a clear, concise statement of what a chemical analysis, together with years of experiment, had shown to be the best system of feeding cattle and horses for all purposes, and he courteously answered many questions upon the subject from the farmers present. The value of such practical talks cannot be overestimated, and if every farmer would heed their teachings, there would be fewer vacant farms upon our hillsides. If our young farmers could only take a course at the Agricultural College before entering upon their life work, how much of the discouragement which now attends their efforts would fade away in the light of science and the intelligent understanding of the composition of the soil and of its various products.”

HILLSBOROUGH.

The second day's session was held at Hillsborough Bridge on the following day. The audience which assembled was composed of the leading farmers of the vicinity, with a good number of ladies. In the absence of the county member of the Board, Fred W. Flint, master of the Grange at Hillsborough, called the meeting to order, and introduced the secretary, who spoke briefly of the work of the Board and proceeded to discuss the subject of dairying in regard to the selection and breeding of dairy animals. He was followed by Hon. D. H. Goodell, speaking in a general way of the advantages offered to the young men remaining in New Hampshire, and expressed the opinion that agriculture in our State is showing improvement. His public address was listened to with marked attention and warmly applauded at the close.

Hon. Moses Humphrey, of Concord, president of the Board, arrived for the evening session, and spoke upon the subject of "Corn Raising" at the opening of the meeting. Mr. Humphrey's practical remarks on this subject were well received and are based on years of experience and careful experimentation in the culture of the corn crop.

The secretary followed, on the subject of dairying, speaking on feeding and handling the milk. He advocated liberal feeding of a well-balanced ration, and gave different combinations of feeding elements that would be expected to produce the best results. Various questions were asked at the close of the address, which brought out essential points in the subject. W. E. Gay, of Hillsborough, advocated two feeds a day for dairy animals and discussed other features of dairying. Mr. Gay is one of the progressive and successful dairymen of the State. Much interest was manifested by those in attendance, and although two speakers expected were unable to be present, the meeting was regarded as a successful one.

ROCKINGHAM COUNTY.

AUBURN.

The institute for Rockingham county was opened at Auburn, Tuesday, February 26, there being present Hon. J. D. Lyman, of Exeter, G. R. Drake, of Pittsfield, and the secretary. The afternoon session was called to order by Henry C. Sanborn, master of the Grange, who explained the object of the meeting and called upon the secretary. A general outline was given of the work of the farmer and the idea made prominent that each farm should be run for what it was best adapted, taking into consideration the location, character of the soil, and capital to be invested in its cultivation. Mr. Drake read a well-prepared essay upon "Corn Culture," which will appear in this report. This was followed by numerous questions from the audience and a general discussion participated in by W. C. Underhill and O. M. Tenny, of Chester, Alfred Wood, of Auburn, and others. The fertilizer law of the State was explained and its complete enforcement recommended.

A fair-sized audience assembled for the evening session, at which the subject of dairying was presented in an hour's talk by the secretary. An interesting discussion followed. Mr. Lyman was the next speaker, giving one of his most interesting talks.

His subject was corn growing, forestry, and agricultural progress, in the various lines of which he interested and pleased the audience, speaking with more than usual vigor and earnestness.

BRENTWOOD.

The institute on the following day was held at Brentwood, and notwithstanding the storm there was a large attendance at the afternoon and evening sessions. Mr. Drake presented the subject of "Corn Culture" and the secretary that of "Dairying." The discussion which followed was participated in by O. M. Tenny, of Chester, A. W. Dudley, and E. G. Flanders, of Brentwood. Mr. J. L. Gerrish, of Webster, arrived for the evening session, and gave a talk upon "Small Fruits." Mr. Gerrish preferred to start new

beds of strawberries rather than dig out the weeds and cut the runners from the old bed. Would transplant in May or June and cultivate in connection with some other crop the first year, during which time no fruit should be allowed to grow. The greater yield would be obtained the second year. He would not spend much time in culture the third season. He would grow the black cap raspberry on heavy soil in rows seven or eight feet apart. Cut the canes back to three or four feet and pinch off the tender shoots. Advised cutting back the grape each year, and especially the first autumn after setting. Mr. Lyman followed with a good speech that was well listened to.

CARROLL COUNTY.

FREEDOM.

The first attempt to hold Carroll county institute was a failure on account of a severe rainstorm. A second trial was made with good success, and on Thursday, February 28, the representatives of the Board arrived at Freedom, the home of Dr. Alonzo Towle, the county member. The audience assembled were the farmers of one of the best agricultural towns in Carroll county. The doctor stated the purpose of the meeting and the work of the Board, after which he introduced Mr. Gerrish, of Webster, who spoke at length on the subject of "Sheep Husbandry." Remarks following developed the fact that the industry had been almost wholly abandoned in that locality on account of the foot rot in the fine sheep and the running down of the coarse wool breeds. Medium sheep were recommended, and considerable interest was developed in the subject. One farmer thought that there would be more encouragement if farmers could be persuaded to keep their best lambs instead of selling to the butcher.

The evening brought a crowded house, more than could be seated. Dr. Towle presided. A few plain words of a general nature concerning the present and past condition of New Hampshire agriculture were spoken by Mr. Gerrish in the first of the evening, the balance of the time being occupied by the secre-

tary on "Dairying," and something on "Feeding" by the county member.

OSSIPEE.

The institute on the following day was held at Water Village, Ossipee, the speakers and subjects being much the same as on the previous day. The interest in the subjects was manifested by the close attention given and by the questions and discussion which followed. Among the farmers who were specially interested, and to whom the representatives of the Board are indebted for courtesies and attention, are L. W. Brown, A. K. Roberts, and C. H. Wiggin.

N. J. BACHELDER, *Secretary*.

PAPERS PRESENTED AT INSTITUTES.

SOILS AND THEIR REQUIREMENTS.

BY JOSEPH B. WALKER, CONCORD.

An old clerical friend who used to visit me some years ago was fond of rallying me upon what he was pleased to call my "dirty acres." The phrase doubtless was suggested to him by that of the "*paterna jugera*," with which he had been conversant during the days which he had devoted to his Latin classics. I am free to confess that I not only then had but have even now a strong love for these dirty acres. They afford a dirt which rubs off and does not stain. It is an innocent love, and, if I do not mistake the expression upon all your faces, your speaker and his auditors are one in that affection. So I shall not apologize for the subject which I have selected for our consideration this afternoon.

Everything which lives comes directly or indirectly from the soil and from this derives its daily support. "Out of the ground the Lord formed every beast of the field and every fowl of the air," and "out of the ground" came also our primal progenitor, for whose sake it was cursed with the curse it bears to-day. Yes, everything which lives, vegetable as well as animal, — plant, insect, reptile, bird, animal, fish, man, — has one common origin and comes from the soil. Upon dying, all also return to its embrace. The kings who lie in glory, the great toilers of the world, the beggars who, having lived awhile in wretchedness, have surrendered their useless lives, the trees of the forests, the herbage of the fields, the flowers of the garden, — all alike, upon dying, lie down in the earth from which they came and upon which they lived. That which was their womb becomes their

sepulcher. Emphatically and directly is the soil the great bed of all vegetable germination. Such in the very nature of things it must ever be. It is the bottom factor in the problem of agricultural progress. It underlies its whole system, and without a knowledge of its characteristics and properties high success in our vocation is impossible.

The first question arising upon a consideration of the soil is, Whence comes it? What, in other words, is its origin? Geologists tell us that the planet upon which we live was once a vast mass of gaseous vapor, without form and void, floating in interstellar space; that as it condensed it took on heat and became a huge molten mass to which axial revolution imparted a spheroidal shape. They say that, after it had radiated into surrounding vacuity its heat, its surface hardened by degrees into a solid crust. They further say that, in the course of ages, this smooth surface was by contractions and expansions ridged into mountain chains and intervening valleys; that into the deeper hollows were gathered the waters which were precipitated upon it; that in time the portions that were once seas became dry land and the high lands became ocean beds; that glacial action and great sea currents, aided by wind and frost and heat, disintegrated portions of this hard crust and changed it from solid stone to sand, which has since been modified by human action and decayed vegetation; that this sheet of soil which envelops the whole earth varies in thickness from an inch and less to hundreds of feet; that everywhere, as we bore through it, we are sure, sooner or later, to strike the great rock crust which in most places it conceals.

Thus came the soil. It is but pulverized rock, mingled with decayed and decaying vegetable matter, and is sometimes near to the place of its origin and sometimes at long distances therefrom. The successive stages of its production we have neither the time nor occasion to explain. For our present examination, we may accept it as we find it and turn, during the half-hour at our command, to an examination of the four most common classes of it, viz.: 1. *Loamy soils*; 2. *Gravelly and sandy soils*; 3. *Clayey soils*; 4. *Peaty soils*. With these we are all more or less familiar. Without amendment they are all, except the first,

substantially barren. Agricultural profit depends largely upon our success in making this, for the plant food upon which crops feed comes almost entirely from the soil.

1. The improvement of the first or loamy soils is effected by the ordinary methods of culture, — by pulverization, fertilization, and freeing them from all useless vegetation. It often happens that nature herself has done this by processes of her own, and lessened thereby the labor of their occupants. Prairies and alluvial meadows, where she has thus come to the aid of man, are instances of this favor.

2. The second class can be improved by the addition of vegetable matter and the supply of its natural lack of moisture. Many dry soils are barren simply from this latter cause. Such is the case with many of the arid wastes of the West. An observing traveler recently told me that the limit of irrigation was so clearly marked along the line of the Suez canal that he had walked with one foot upon land teeming with growing crops and with the other on barren sand. The desert is not necessarily unproductive. Water it, as do the Egyptians the plain of the Nile, and it will vie with the prairies in productiveness.

3. Clayey soils may be made productive by means which are the exact opposite of those required by the soils just mentioned. These require, besides pulverization, thorough drainage and an admixture of sand or some other substance of a more friable texture than their own. The late ex-Alderman Mecchi, of England, drained his clay soils at Tip Tree Hall to the depth of five feet. Having subsequently properly pulverized them by the steam plow and cultivator, he manured them, and afterwards took from them crops of wheat averaging forty bushels per acre.

4. Peaty land is rendered fertile by such additions of sand or other matter as will supply its want of silex, and by the removal of redundant water. Instances of such soils are afforded by our improved bog lands. The Dutch polders are remarkable examples of soils improved by extensive and persistent drainage. The Holland farms, many of which were originally covered by water more than ten feet deep, are now yielding average gross returns of a hundred dollars per acre. Could we make our New Hampshire soils do as well, farming among us would be one of the

most attractive pursuits in the State. Is that an ideal impossible of attainment? I do not think so.

Soils have not only their special physical characteristics but their particular adaptations also.

1. Sandy soils are particularly favorable to early starting and early maturing of crops, like pulse and most grains. The melting snow and spring rains are pretty sure to give them sufficient moisture in the first part of the season and they mature so early as to be little affected by summer droughts.

2. Clayey soils, when properly drained and pulverized, are especially adapted to grass, particularly to clover. The clay soils of England bear good crops of grain and roots, and there is no reason why our own soils of similar character may not do the same. Most New Hampshire farmers have, indeed, little to do with them, as they are not common with us; yet, wherever they do exist, their cultivation may be rendered remunerative if it be intelligent and thorough.

3. Peaty soils in their natural state bear little but sedges and grasses of a poor quality. Properly improved, they will produce almost any crop common to our farming. I have seen good potatoes raised upon pure peat but little improved. Upon such land, properly cared for, I have seen good crops of roots and other garden vegetables growing; but, until the water table beneath them is lowered from two to four feet below the surface of the ground and silex in sufficient quantity is supplied, satisfactory crops will not grow upon them.

In short, all soils have peculiar natural aptitudes, and only when worked along these lines will they yield maximum returns. Satisfactory crops of corn cannot be raised on clays or peats, and successful grass culture will be found impossible on porous sands or unimproved peats. Good loamy soils only are adapted to crops of all kinds. If these simple propositions are correct, as I believe they are, we naturally inquire, not only what are the soils from which the New Hampshire farmer is to gain a support for himself and family, but also what are their areas and to what crops they shall be devoted.

The leading kinds I have already sufficiently indicated. Their areas, under a broader classification, are as follows:

1. Soils devoted to tillage, about one million acres, less rather than more	1,000,000
2. Those in pasture, a million and a quarter acres	1,250,000
3. Those devoted to forests, wastes, water, highways, ledges, and mountain crags, comprise an ag- gregate area of three and a half million acres	3,500,000
	<hr/>
Whole number of acres	5,750,000

This is about the area of the State.

Now what else, other than what we are now doing, shall we do with the soils of these great divisions? Do you say increase at once their arable area? It cannot be done; at least not to any material extent. There is as much of this whose culture is no longer profitable and which should lapse to pasturage or forest as can be reclaimed from these last two divisions. Increase then our pasture area, do you say? Much of this is already worn out and degenerating into wood. If we would improve and enlarge our pastures it must largely be by devoting them for a time to wood and timber, and after a generation or two clearing them anew.

Whoever studies carefully a topographical and geological map of this State will see that nature has imparted to its surface certain fixed features which human agency cannot change. It will be seen that we have five principal river basins, viz., those of the Connecticut, the Merrimack, the Saco, the Androscoggin, and the Piscataqua. Along these are narrow meadows, occasionally widening to a mile or so, but generally of limited width, while the watersheds between them contain considerable areas of table land sufficiently smooth for profitable culture. These intervals and smooth uplands afford the arable lands of the State. Considerable portions of these watersheds have been cleared for grazing. The remainder, too rough for tillage or pasturage, is mainly in forest, and for the present at least, perhaps forever, it must be devoted to wood and timber only. We shall find however, upon further examination, that through all the valleys of these wild sections of alternate gorge and ridge now in forest, flow perennial streams whose currents may be easily arrested and harnessed to water wheels without number. Indeed, the

aggregate unused water power of the State is vast beyond belief to him who examines it for the first time. Thus far we have hardly begun to avail ourselves of this great agency for the creation of wealth except upon some of our larger streams.

From these few facts and from others of a similar character which could be cited, it is clearly apparent that nature has decided that wood and timber shall be the crop to be produced upon two thirds of our entire area. As clearly, indeed, is this apparent as that alternate strata of coal and iron ore suggest to the regions where they exist the mining of coal and the manufacture of iron in those localities. These rock-ribbed hills and mountain sides will not tolerate the plow. They have a rude independence of their own which will not be controlled. Still, if we accommodate our wishes to their requirements, they will yield us liberal returns of great value perpetually, and that for the mere taking. A few years ago an enterprising citizen of one of our mountain towns said to me, "Should I add to the timber lands which I now have an additional tract which I have thought of buying, I could cut on my own land a million feet of lumber each year without reducing my supply, for the growth of that left standing would equal in amount the quantity I should take away." Indeed, we may as well accept first as last the great fact that the greatest agricultural resource of New Hampshire is its wood and timber. The soils which scorn the plow, and will not tolerate its presence, will submit willingly to the axe. From his timber lands, well cared for, the farmer may get his surest and best return, and that from acres which he has generally considered his poorest.

But if, as I have heretofore said, ours is to a moderate extent only an agricultural State, it does not become us to neglect such arable areas as we have. Rightly managed, they will support twice the agricultural population they now do and twice as well. The improvement of our pastures in such ways as are practicable, the better manipulation and fertilization of our fields, and the more careful adaptation of crops to soils and local demands, will secure to the farmer a good living and a respectable estate.

The New England farmer has had more willing soils than the Dutchman, and those of more varied resources. Much of the

latter's land was beneath the sea when he took it ; even now he has hardly a tree which he has not planted. With us the forest takes care of itself, and comparatively few of the million of acres which we cultivate need an inexpensive drainage. As before remarked, the Dutchman makes his land yield a gross income of a hundred dollars per annum ; ours yields about ten.

I do not much relish anecdotes of which I am myself the butt ; yet a little experience of my own illustrates so well the present trouble with our agriculture that I cannot refrain from telling it. A canny old Scotchman, who had been and then was an agricultural writer, once called upon me to see my farm. I took him all over my tillage lands and his sharp eyes took in their characteristics and their growing crops at a glance. At the end of the survey, he turned to me and very enthusiastically remarked, "A very nice farm you have, Mr. Walker." Then came a little pause, during which my breast had swollen with agricultural pride to such an extent that I was about to unbutton my jacket in order that I might save the buttons, at the close of which he finished his sentence by the quiet remark, "but you don't half carry it on." Would any of you like a visit from that man ? The sum of the whole matter is this. If we would get the most from our soils, whether in meadow or pasture or on mountain side, we must make gardens of our fields, as does the Hollander ; so far as we can, we must restore our failing pastures and reduce to systematic management our forests. If the manufacturing of the State was managed as carelessly and unthriftilly as is much of its farming, every mill wheel would stop in less than five years. You may abuse me for this remark, but it is true. My only reply will be that of the old philosopher who was about to be beaten for the utterance of an unwelcome truth. "Strike if you care to, but hear !" We shall never be carried to heaven on flowery beds of ease, for that is not God's way. We shall never get rich by ignoring the characteristics of our soils, for he tells in language as plain as that of the Holy Scriptures that agricultural success depends upon a perfect obedience to nature's laws. There is no imputed salvation to the agricultural sinner. It comes only from a strict compliance with these, attended by hard work.

AGRICULTURAL COLLEGE AND EXPERIMENT STATION.

BY S. B. WHITTEMORE, OF COLEBROOK.

People have so long spoken of the "Land Grant Colleges" as Agricultural Colleges that many never think of them as teaching any sciences except those connected with agriculture. In reality they have a broader work to do. The United States law said that they were specially to teach those branches connected with agriculture and the mechanic arts. New Hampshire has a college that has been teaching agriculture with some success for several years. Two hundred and seventy-five students have been connected with it, and some of them are to-day doing excellent theoretical and practical work in agriculture. There is another side to the college work about which the people of the State know very little. They have not yet learned that there is a course in the mechanic arts, a course not long established, yet capable of giving the young men of New Hampshire the training which those of Massachusetts are receiving at Boston and Worcester. Two years ago the trustees of the college were fortunate in securing the detail of T. W. Kinkaid from the engineering corps of the United States Navy. Prof. Kinkaid organized the mechanical course which is now being followed. It has not been allowed to detract from the course in agriculture, but has been the development of the other side of the college. The three characteristics of the course are higher mathematics, mechanical drawing, and workshop instruction.

The workshop occupies a building fifty by thirty feet, contain-

ing forge-room, wood-working and tool rooms, and room for machine work. The shop is provided with steam power, two steam-engine indicators, two lathes, a shaper, a chill press, a milling machine, two crucible furnaces, and tools suitable for pipe fitting, and wood and iron work. These tools and machines have cost over two thousand dollars, and with those being manufactured by the students will satisfy the present demands. The shop is under the charge of a mechanic and a carpenter who are among the best workmen to be found in the State. They do the necessary work for the College and Experiment Station and a considerable amount of outside work. The foreman, Mr. John Brown, has made a large part of the delicate physical apparatus of Dartmouth College, as well as some of that used in the Northwestern University, at Evanston, Ill. During the present year a bridge model has been made at the shop for the use of the United States Naval Academy, at Annapolis. All students are required to take shop-work during parts of the first and second years, while those who take the mechanical engineering course have workshop instruction during the last two years. During the first year students have mechanical drawing and joinery, chipping, filing, and forge-work. During the second year they have pattern making, foundry work, practice in the management of steam machinery, and machine construction. Those who take the mechanical course have also recitations in such subjects as descriptive geometry, and during the third and fourth years they continue the shop-work, making it supplement the recitation work. In the shop the plan pursued is to engage in work on articles which give the necessary practice and will be, when completed, of practical value. The classes during the present year have been at work upon a saw bench for use in the shop, and have commenced the construction of a steam engine. The two years for which Prof. Kinkaid was detailed ended during the present college year. The trustees, however, are unanimous in the determination to fill the vacancy before the beginning of the next college year, and to make shop-work one of the strong points in the New Hampshire College of Agriculture and the Mechanic Arts.

EXPERIMENT STATIONS.

Agricultural experiment stations are the inevitable result of decreasing soil fertility. As long as rich soils yield abundant harvests with little care and no thought, there is no demand for such institutions; but when the natural store of fertility becomes in a measure exhausted, when the labor and care that once gave large yields fail to give even fair crops, when the compensation for the work performed fails to compensate the tiller of the soil, then there is a demand for aid from some source. First the use of manures begins to demand attention, and the substances which had previously been regarded as nuisances are more or less carefully saved and returned to the land; the ashes are used, then lime or plaster; later, bones and bone manures, and, finally, prepared fertilizers. This may not be the exact order, but it illustrates the steps in the fertilizer problem. Then, too, in feeding, pastures fail, crops cost more and greater care is exercised in using them; foods have to be bought to help out short pastures and the hay-mow requires assistance in winter; all of these things have a tendency to make the farmer more careful and thoughtful about his work. This tendency to think more of the "why and wherefore" of the everyday farm operations brings up many problems difficult of solution, and there grows to be a demand for some means of investigating these problems. There is no occupation, perhaps, where the solution of difficulties is so much dependent upon direct experimentation as agriculture. The machinist may figure out the size of rod necessary for a given part of a machine, the width of belt necessary to carry a certain horse power, or the bridge builder may from mathematical computation arrive at safe results on the size of girders, braces, posts, etc., but there are certain influences of soil, season, seed, climate, culture, etc., which make the matter of investigation a local one to a considerable extent. Were it not for this, a single experiment station at Washington, under the control of the government, might do the work for the whole country. The demand for investigation and the facts resulting therefrom have at various times stimulated individuals to conduct private experiments, but it could not be expected that there would be those in every State

with the means and the disposition to carry on this work. A few States saw the need of it and established state experiment stations; but the demand grew as years went by. The good work done in Massachusetts, Connecticut, and New York showed what might be accomplished elsewhere, and, as a result, the national government in 1887 passed a bill granting money for the establishment of state stations in connection with the agricultural colleges.

This briefly has been the history of these institutions. Now what is there for ours in New Hampshire to do, and what is it doing at the present time to aid the farmers? New Hampshire farmers buy large quantities of commercial fertilizers with which to raise various crops; they also buy considerable quantities of grain from which to produce milk, pork, beef, etc. Here are two fruitful lines of inquiry, namely, the use of fertilizers and the feeding of stock. The diseases like rust, blight, and smut, and the ravages of insects destroy thousands of dollars worth of crops annually. The use of poor seed or seed not suited to soil and climate, the lack of well-bred varieties of corn, and the improvement of the live stock of the State,—these are a few of the many problems that might perhaps engage the attention of the station workers. Not everything can be done in a single year, and in all of this work time is absolutely necessary, hence if we expect too much for the first year we shall fall short of realizing our expectations.

WHAT HAS BEEN DONE.

The station is equipped for dairy work; it has sixteen thoroughbred cows of four breeds, four each, namely, Jerseys, Holsteins, Ayrshires, and Shorthorns or Durhams. It has modern dairy implements and utensils. The work undertaken has been to test various forms of deep setting alongside of the centrifugal process of obtaining cream; to determine by chemical analysis and by direct churning the butter producing quality of the milk of different breeds; to note the effect of feed upon milk; to study the economy of each cow as a machine for converting hay, ensilage, grain, etc., into milk and butter; to see what combinations of food will give the best results, cost and product being considered. In

this work the raising of crops necessarily comes in, and the cost of raising is an important factor ; hence a strict account is kept with each crop and field of the manures used, the labor of men and teams, the yield at harvesting, etc., and the shrinkage in the barn ; in this way, by adding interest on land, the cost of each substance fed is determined, and from this the food cost of the milk produced may be determined.

The milk from three cows is being analyzed night and morning every day ; this involves six complete analyses daily, or thirty daily determinations, since each complete analysis consists of five determinations, and this means 10,950 chemical determinations per year. The object of this vast amount of work is to determine the variation in the fat and other constituents of milk, also the effect of food upon milk. The feeding work consists of feeding weighed rations made up of ensilage, hay, coarse fodder, and four kinds of grain to twenty cows ; this involves four to seven weighings daily per cow, — about 1,000 per winter. This work to be valuable must be carefully done ; for the twenty cows this means 20,000 separate weighings. The food is also being analyzed to determine its composition. In field work the coming year there will be 24 acres devoted to experiments with manures and fertilizers, 15 acres for rotation of crops, 2 acres for studying clovers and other leguminous crops, 6 to 10 acres for late and early cut hay, and 10 acres for pasture renovation.

Thus far the station has published four bulletins and two more are soon to be issued ; the first three are devoted to the study of the ensilage problem, the fourth is on stock feeding, and the fifth and sixth are to be on the use of fertilizers. The present year (1889) a system of local tests of fertilizers will be inaugurated, the effect of which must be of great value to the farmers in all parts of the State, for it will solve many difficult problems regarding the differences which exist in the soils.

The question of the relation of the farmers of the State to the station is a very important one, for the success of the institution depends more upon the aid and encouragement that it receives from those for whom it is working than upon any other one factor. Now the plain, practical question is this : Will you accept the services of those who are your servants and who desire to do

the work you want done? You individually know what is bothering you, the problems that perplex, the information that is needed. Your duty is to write to the station authorities and ask for light. They may have to say frankly that they don't know; they may need time to investigate; it may be that the problems are beyond their reach; but it will enable them to know your wants and to shape the station work in the way the practical farmers desire it. The equipment of the New Hampshire station is as good as that of any State, so far as the doing of practical work is concerned. It has a new building costing \$7,000, a commodious laboratory well lighted and ventilated, a well-equipped dairy-room, new and improved machinery, and live stock that will compare favorably with that of any similar institution. The facilities for doing work are good; the desire of every worker is to get results of practical value to every farmer in the State.

CORN CULTURE.

BY GEORGE R. DRAKE, OF PITTSFIELD.

The cultivation of Indian corn antedates the history of this country. Columbus found it growing here when he discovered America, and subsequently introduced it in Spain. The word corn was originally applied to any round hard body like a seed, and was subsequently used as a generic name for all seeds used in making bread. Specifically, it has denoted the kind of grain which furnished the bread stuff of the people. In England the word is largely applied to wheat, in Scotland to oats, and in America only to maize or Indian corn. The corn mentioned in the Scriptures undoubtedly referred to the smaller cereal grains, for had the disciples "plucked the ears and did eat, rubbing them in their hands," they would not have found Indian corn or maize a palatable or digestible food. Most authorities agree that Indian corn originated in America.

It is the most productive of the cereal grains, and the facts that the area devoted to the corn crop in this country during the past year was upwards of seventy-five and a half million acres, or three and a quarter millions in excess of any previous year, and approximated two billion bushels, or thirty bushels for each person in the United States, above the probable foreign demand, show the important position that the crop occupies. The last season was particularly unfavorable for maturing the crop, and New Hampshire's yield was three and a half bushels under the average for the entire country, but two and a half in excess of that in Maine, where the effects of the early autumn frosts were more severe. These statistics are not introduced here to the disparage-

ment of the old Granite State, for she has led all of her sisters in the average yield per acre, but to show the necessity of a

JUDICIOUS SELECTION OF SEED.

While it is impossible to grow a profitable crop of an early variety that last year would have matured before the first severe frost in many localities, it is desirable to cultivate only those kinds which are reasonably certain to mature before the average time of the injurious autumn frosts. Having selected the most perfect ears of a variety of seed adapted to your needs, — and let me urge you to exercise great care in the selection of your seed corn this year, — the selection and preparation of the cornfield next claim attention. There are many small sections of the State not well adapted to corn culture, and it is both injudicious and unprofitable to attempt to grow corn in those localities. Other things being equal, it is desirable to cultivate one large plot in preference to several small ones, for the time lost in turning the team at each bout, in many instances, is a considerable and needless loss.

THE IMPORTANCE OF DEEP TILLAGE

and the desirability of thoroughly mixing the fertilizing materials with the soil are not fully realized by our farmers, and in order to thoroughly pulverize the seed-bed, the plowing must be carefully and perfectly done. Ordinarily all of the soil should be inverted by the plow, and if this be less than six inches in depth an inch of the subsoil should be turned up with each plowing. The plow is yet to be invented which will bury manure so deeply in an upland friable loam in New Hampshire that the roots of growing corn will not find it and assimilate the plant food therein.

It is not judicious to plow under all of the

MANURE

but to apply the composted and the greater part to the surface and thoroughly incorporate it with the soil. The reason for this will be plain to all when it is realized that the growing corn plant can only take food through its little mouths at the extremi-

ties of its countless rootlets, and in order that plants may make a steady and rapid growth from the germination of the seed to maturity it is necessary that these little roots shall find plant food at each step of growth.

THE HARROW

has, until within the last fifteen years, been the most neglected implement used by the tillers of the soil, but the genius of the inventor has now supplied the needs of the farmer. From the long list of implements of this class one may now supply his wants, unless his desire is to find an "all-purpose" harrow. On land free from stone the Acme is the best pulverizer, but its heavy draft and its liability to breakage make the disc harrow a more desirable implement for the average farmer. A smoothing harrow has been an indispensable implement with me for the last ten years, and for covering grain seed, making a mellow and fine seed-bed, for rapidity of work, as well as broadcast harrowing young corn, one only needs to witness its work to appreciate its value.

Those who have once used a

CORN PLANTER

will need no arguments of mine to convince them of the advantages of machine planting, for the work is more evenly, rapidly, and economically done, the superphosphate more suently distributed, the kernels germinate quicker and more uniformly, but the greatest benefit derived from the use of the planter is the facility with which the smoothing harrow or the broadcast weeder may be used in cultivating the corn.

It is not my intention to here dwell at great length upon the use of

CONCENTRATED FERTILIZERS,

for the continued increase in the amount annually sold is the strongest argument in favor of their application. The accompanying table shows the results of my experiments for the past five years. In these experiments one ounce of the respective fertilizers was scattered around the seed in each hill at planting and no other manure was applied.

TABLE.

CORN CULTURE.

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No. of plot.	Kind of Fertilizer.*	Yield per acre in pounds of corn in the ear.					Rank.
		1884.	1885.	1886.	1887.	1888.	
						Average.	
1	Bay State Fertilizer — Clark's Cove.	2,098	3,000	4,218	3,550	3,964	1
2	Buffalo Am. Bone Superphosphate	2,588	2,700	4,558	3,082	3,721	2
3	Standard Fertilizer	2,424	2,713	4,303	2,883	3,030	3
4	Stockbridge Grain.	2,604	2,925	4,131	2,936	2,868	4
5	Powder's Hill and Drill	2,292	2,725	4,091	2,699	3,468	5
6	Soluble Pacific Guano	2,372	2,675	3,601	2,725	3,718	6
7	Bradley's XL	2,272	2,671	3,940	2,950	2,670	7
8	Nothing	2,264	1,861	3,944	1,436	2,531	8
9	Williams and Clark's Americus			4,175	3,214	3,623	9
10	Original Bay State Super, Tucker & Co.			3,966	2,953	3,518	10
11	Dow's Nitrogenous			4,056	1,766	3,743	11
12	Flamingo Guano			3,516	2,449	2,560	12
13	Mapes Potato Manure				3,164	3,725	13
14	Mapes Complete Manure					3,647	14
15	Cumberland					3,688	15
16	Mapes Corn Manure					3,605	16
17	E. F. Coe's H. O. Am. Super					3,421	17
18	Patron's Special					3,552	18
19	Ceres					2,435	19
20	Great Planet Manure "B"					3,391	20
21	Great Planet Manure "A"					4,131	21
22	Unicorn Am. Super					4,083	22
23	King Philip Alkaline Guano					3,815	23
24	Buffalo, Potato					3,215	24
25	Liebig Am. Super					3,334	25
						2,774	
						2,449	
						3,391	
						2,420	
						4,131	
						4,083	
						3,815	
						3,478	
						3,323	
						2,774	
						5,068	
						3,843	
						3,777	
						3,775	
						3,758	
						3,689	
						3,203	
						3,428	
						3,227	
						3,409	
						3,040	
26	Dis. Bone Black, 350 lbs., Mu. Pot., 106 lbs., Sul. Am., 36 lbs.					5,068	26
27	Dis. Bone Black, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,843	27
28	Phosphate Meal, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,777	28
29	Dis. S. C. Rock, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,775	29
30	Dis. Bone, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,758	30
31	Dis. Bone Black, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,689	31
32	Dis. Bone Black, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,203	32
33	Dis. Bone Black, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,428	33
34	Phosphate Meal, 175 lbs., Mu. Pot., 53 lbs., Sul. Am., 18 lbs.					3,227	34

* One ounce in each hill, no manure.

† Two ounces in hill.

Those caring to study and compare these results will find that the best yield has been produced by the application of the Bay State Fertilizer, which is not now sold in this State; that the Buffalo Superphosphate produced the greatest yield and in that instance was applied at a profit of 218 per cent; that the average profit ranged from 52 to 197 per cent on the sum expended for the patent fertilizers. Agricultural chemicals are more expensive than patent fertilizers when purchased in small quantities, and an intelligent and judicious use of them requires some study and considerable experimentation to make the best combinations, but they produce the best results, and vary considerable in their value. The German and the English slag has been prepared by a patented process and is sold at a low price under the name of phosphate meal. My experience in the use of the German has been very gratifying and it is commended to the consideration of those who can make a comparative test of phosphoric acid obtained in this and other forms.

The high price of labor and the scarcity of skillful help have compelled farmers to adopt

NEW METHODS OF CULTIVATION

and to substitute the horse and the implement for the man to the greatest extent possible, and the adoption of this practice has resulted in no diminution in the yield or no reduction in the profits. Early and frequent cultivation and at least one hand hoeing during the season must be given the corn, if the land contains noxious weed seeds, to complete the work of the broadcast weeder, smoothing harrow, cultivator, and horse hoe; but experiments have convinced me that the old practice of making a symmetrical mound of earth around each group of corn plants is neither necessary nor desirable. The one great point in cultivating corn is the destruction of noxious weeds, and the earlier and more persistently the warfare on them is commenced, the easier and more complete will be the victory and the greater the corn crop.

TOPPING VS. SHOCKING.

The practice of topping the corn is more desirable on upland farms when one has the time and there is no danger of injurious

frosts, but on low lands, stooking or shocking gives the best results. Heavier and richer colored corn can be harvested by the former plan, but it is more laborious. The latter is best adapted to the needs of those who cultivate large areas.

The one great obstacle in growing a large area of corn is the husking. Experience has convinced me that, with the aid of a boy, it requires no great amount of courage to plant and till a large cornfield, but when I last autumn began to husk upwards of 500 bushels of corn without assistance my mettle was severely tested.

Mr. Chairman, before concluding this paper I desire to express my appreciation of the action of your Board and to suggest that the advice of its president deserves the acceptance of our farmers, for he has lost no opportunity to urge us to "grow corn," and while his advice may not be worthy of indiscriminate acceptance, it certainly commends itself to the considerate attention of the average farmer.

SUGAR AS A FOOD.

BY F. F. FISK, OF WEBSTER.

Ziemssen gives the following as a definition for food : "In food are included all substances which, after ingestion, contribute to the structural, chemical, and functional integrity of the organism, whether they be directly converted into its tissues, contribute by their oxidation to its heat and other forces, or simply furnish conditions favorable to these operations." According to this definition, water and other inorganic substances which contribute in the latter way by facilitating solution, osmosis, and tissue metamorphosis are as truly food as the flesh and vegetable matters which are directly converted into tissue, or serve to produce the forces of the economy.

Food is as old as life. It existed before life, and must exist as long. That it should never fail, the Creator filled earth, and air, and light with the elements of food, giving to plants the power to get their food from the great storehouse of nature without the aid of man. Before animals there were plants, for animal life is dependent on plant life. By natural laws plants and animals are furnished with food, — a never ending supply ; yet we, the farmers of New Hampshire, labor for little else than food, — food for our plants, food for our animals, food for ourselves, food for those who furnish us with clothing (for we have long since ceased to make our own), food for those who furnish us with books and works of art, for man has a spiritual life as well as animal life to sustain, and what is art but something spiritual revealed to sense ? So we labor for food, notwithstanding the unfailing supply guaranteed by the Creator for both plants and animals. It is to support a life above our animal life that we labor.

We labor for food, for the condition of life we would sustain is unnatural. We wish to grow plants in soil and climate unsuited to them by nature. We take animals from the place where the Creator placed them into localities where we must furnish the food or they will perish. Besides our animal life there is a spiritual life that must have food. Nature has furnished food for the higher life, yet we are not satisfied and work for more than nature has given us — work for art. The unnatural lives we would sustain of plants, animals, and ourselves, make the subject of food one of the most important to be discussed. Our ignorance of nature's laws compels us to treat the subject empirically, to give for our rule of action experience, well or ill founded. Our only source of food supply is nature's storehouse ; such as she gives we must take, but she is lavish in her varieties. Adding to the numerous varieties the countless demands caused by our social life makes the problem of food very complex,— a problem we are continually trying to solve. Nature is our best guide ; the more familiar we are with her, the simpler the problem.

“ In the class of graminivorous animals we observe that during their whole life their existence depends upon the supply of substances having a composition identical with that of sugar of milk, or closely resembling it. Everything they consume as food contains a certain quantity of starch, or gum, or sugar mixed with other matters.” — *Liebig's Animal Chemistry*. Says the late Dr. James R. Nichols : “ Our meadow and upland grasses contain a sweet substance which is probably cane sugar ; and it is to this that much of the value of these plants as food for cattle may be attributed.” Since we must have sugar, or an equivalent, the question at once presents itself, When shall we use sugar ? or, if an equivalent is to be used, Which of the numerous substances shall we choose ? Not an easy question to answer at all times, for the questions of availability, finance, and, if it is food for our domestic animals we wish to obtain, the health of the animal, are to be considered ; if it is food for ourselves, taste and custom are important factors.

For the young of all mammals, graminivorous or omnivorous, sugar is always found in milk, the food nature has provided. Says Dr. Peter Collier : “ We can only interpret nature, if at all,

by facts." From the fact that sugar is found in all milk, and neither gum nor starch, we should interpret nature as saying there was no equivalent for sugar for the young mammals. Respiration is one of the functions of life. Sugar and fat are among the supporters of respiration. In milk we find fat as well as sugar, and in quantities sufficient to support respiration, if the animal is a calf, while it is subject to the exercises and excitement consequent upon following its mother while she is grazing. The fat of the milk was found to be a luxury and has become a necessity. To secure this fat, and at the same time raise the calf, we confine the calf in comfortable quarters, free from excitement, thus lessening respiration and the demand for food to support it. With the sugar and the fat that may be left in the milk, we secure under these conditions a growth nearly or quite equal to that obtained by whole milk while the calf follows its mother.

Experience is in harmony with the teachings of nature as we have interpreted it, for no starchy food has been found so good for the young animal as the sugar in the milk. Its peculiar adaptation to the requirements of the young animal seems to be established beyond question. The value of the fat in the milk, if properly cared for, will yield a sum above the cost of production and preparation for market, leaving the milk with the sugar in it a waste product—bulky and perishable,—without the sugar of little value as food, but with the sugar we have the opportunity to rear stock as profitably as ranchmen upon their no-priced food. As we go beyond the milk age of our calf, the necessity still exists for the saccharine food. Its natural food is grass, and while the calf shall make its best growth the grass contains the most of that sweet substance referred to by Dr. Nichols. There is no grass that will furnish so much sugar in New Hampshire as maize. There is nothing that can be grown to furnish food so cheaply as maize when it contains the most sugar and least starch. Here again we have as food for the calf a substance adapted to its needs, and cheap, still making it possible for us to profitably compete with our Western neighbor.

"Certain it is that animals fed on saccharine together with fatty food increase their amount of fat over and above that which could be supplied with fat alone," says Ziemssen. "Through-

out the entire life," says Liebig, "does the necessity for saccharine food exist." So our dairy stock or ox team is no exception. Well-matured cornstalks, containing a maximum amount of sugar, are much better feed for a farm team than any hay or starchy food like corn meal; with nothing but experience to establish the truth of the statement with regard to the farm team, save the fact that at no time during the growth of the ox is the starchy food found as good as the grass with the least starch and most sugar. The green cornstalk is an aqueous, saccharine food; so is milk. Water combined with other nutrient substances is itself a food. A large per cent of the animal's food, no matter what the kind, must be water. In the milk, as in the cornstalk, we have no more water than is necessary to feed the animal, but it is combined with sugar and other nutrient matter in the living laboratory as no chemist can combine them. Whoever will think that he can use as food the sugar of commerce that has been refined, freed from the water and other food matters, must remember the impossibility of rearranging the various nutrient substances as nature arranged them, and that the same substances differently arranged produce very different results.

We study the laws of nutrition that we may be able to feed our animals profitably, which cannot be if we very much violate law, but we feed ourselves with little regard to law when it conflicts with our appetite or custom. In the use of fruit appetite and custom and science all agree. In ripe fruit we have an aqueous saccharine food free from starch. In green fruit there may be starch, which turns to sugar in the process of ripening, leaving no trace of starch. Consul Heap, writing from Constantinople, says of the fig tree: "Its fruit may be reckoned among the staple foods for man for ages before cereals were cultivated by any settled agricultural population." The fig is a very sweet fruit.

In a lecture on the cultivation of the orange in Jamaica, Dr. Neish says of it: "No one requires to be told of the delicious flavor of a ripe sweet orange, nor of the keen relish with which the fruit is eaten, both in the countries of its production and in those to which it is exported; and yet it is just here that science can step in and account for this fact in a way to prove

that the orange fruit is no mere luxury, but that it contains in its composition some of the most important elements of human food. This being the case, its popularity as a fruit is based on the sure foundation of its utility, because in consuming it we gratify the innate cravings of our nature for fruit of just such qualities. In the orange, mineral alkalies and organic acids are blended with sugar and organic fruit principle; but the fruit contains, beside, quite an appreciable quantity of phosphoric acid and a small proportion of phosphate of iron, which latter substance is well known as a medicinal tonic. Phosphoric acid in combination is a most important proximate principle of nutrition. It forms a part of the structure of the human body. We require it for the nourishment of our system, and therefore we seek for it in the food which yields it up to our digestive apparatus. It is phosphoric acid which helps, with starch and gluten, to make wheaten bread the staff of life; which helps to make yam a substantial article of diet; which gives a quality to animal food; and it is phosphoric acid also which gives a zest to the orange fruit, and makes it both exhilarating and refreshing. The organic acid is the citric acid, which is neutralized by the potash, forming nitrate of potash, which is well known as a refrigerant medicine. The acid also serves to render soluble the phosphate of lime, which is a bone food, also a brain and nerve food, in short, a restorative. The phosphate of iron present makes it a tonic, and the tonic properties are increased by a slight bitterness, when present, as it is in certain varieties. As a fruit refrigerant it is most gratefully cooling in a hot climate. The abundance of potash makes it an anti-scorbutic, and a blood purifier. The sugar and nitrogenous elements present in the pulp are directly nutritious. Need I remark after this enumeration of its qualities that the orange well deserves its place on the dessert table?"

The peculiar fat of milk is one of nature's respirators; so is the sugar in milk or fruit. Cream combined with ripe strawberries, peaches, or pears will hardly fail to please any who need food to support respiration, and in no manner violates the laws of nutrition. We in New Hampshire need never lack for fruit or cream. Were there no means of obtaining foreign fruits we have

apples in variety that will give us fruit every day in the year, and our State is eminently a dairy State. Experience in feeding graminivorous animals justifies us in interpreting nature to say it has furnished no better food for the support of respiration than fat and sugar in milk, sugar in the growing plants, and sugar in ripe fruit.

Dr. Nichols, in "Fireside Science," says: "Two important considerations force themselves upon our attention. One is that nature has provided ample materials to supply all our wants. In mountains and caverns and streams she has deposited all elements and combinations which are essential for our well-being and progress, and it is unreasonable and wicked to doubt regarding the future. The other is that science must be sustained and fostered, for it holds the key which is alone capable of unlocking all nature's storehouses, and bringing forth from the dark recesses of earth those rich materials which have been provided for our sustentation and happiness."

DAIRYING.

BY THE SECRETARY.

The soil and climate of New Hampshire are such as to admit the successful practice of various systems of agriculture, and the farmer who is alive to the interests of his vocation, in whatever branch he may be engaged, will continually find some new problem to be solved, the most careful study of which will not always dispel the elements of uncertainty attending the growth of any crop or the manufacture of the product to which he is devoting his best energies. He may calculate with the greatest intelligence, and yet an excess of heat or cold, dryness or moisture, may reverse results in the business which has been organized with the greatest care and in accordance with the best scientific knowledge. These are conditions upon which no man can reckon with certainty. Long-continued experiments and scientific investigation have demonstrated many facts with which it is not only the farmer's privilege but his duty to become familiar, if he would expect success in the system of agriculture he has adopted as the best for his farm and the circumstances in which he is placed. If the farm is to be run as a dairy farm, and the manufacture of either milk, butter, or cheese carried on, there are certain underlying principles a knowledge of which will render results comparatively certain, barring the unreckonable elements of which we have previously made mention.

Before entering into a discussion of the best methods to be employed in the practice of dairying, we will consider the dairy interest of the State as it exists to-day and the progress made in this industry since our previous report.

ASSOCIATED DAIRYING.

We have often remarked that success in any enterprise depended in a large degree upon co-operative action, and the dairying of New Hampshire has received a strong impetus through the co-operative creameries, the influence of which has extended to many private dairies, stimulating a better and larger product. It is a system which enables the use of the most skilled labor of a butter-maker whose entire abilities are educated and developed for the production of the best article, in place of a hundred persons whose training and development are in some other direction ; for the farmer has many interests to care for, and the farmer's wife has more important duties in the household than the business of butter making, which rightly belongs to the male part of the family. We are glad to see this opinion becoming more generally accepted and adopted. The system of co-operative dairying saves the washing of a hundred churns, the weighing of a hundred lots of salt, and the production of a hundred different shades of butter. One man goes to market instead of a hundred and brings home cash instead of barter. It is no wonder that the adoption of this system is increasing in our State, and there is reason to believe the number of co-operative creameries will be trebled in the future. The creameries of the State manufactured in 1888 more than a million pounds of butter, nearly double the amount manufactured in the previous year. The price realized by the patrons of creameries for the milk or cream to make a pound of butter was about twenty-two cents, or considerable more than dairy butter sold for in the Boston market during the same period.

The Cooley and separator systems are about equally divided among the creameries of the State. From our present knowledge we are inclined to think that the relative merits of these systems depend upon the convenience to patrons rather than upon the quantity or quality of butter produced. If sufficient business for the creamery can be obtained within a short distance, the whole-milk system will be preferable ; but if a large area must be covered the Cooley system is the better. Nearly complete returns from the creameries of the State fail to show any practical difference between the two systems in the net price paid patrons

when an equal amount of business was done. The larger the business a creamery is able to do, the less will be the expense per pound. Where there is sufficient business a creamery can well be operated by using both systems, taking the whole milk from those near and collecting cream from those farther away. The rivalry between the two systems should not cause the failure to establish a creamery in any section, for there are few places needing a creamery where either system would not be preferable to none.

PRIVATE DAIRYING.

From the best information we have there have been produced in the State during the year about six million pounds of butter in private dairies. It goes without saying that a large amount of this has been of inferior quality mainly from the lack of cleanliness and skill. On the other hand, a large quantity of the private dairy butter has been equal, and in some instances superior, to the creamery butter, and has been sold for about the same price. To the farmers who are making this quality of butter and are so located as to secure customers, a creamery would be of no special advantage except that the work of making the butter would be paid for at the creamery and the farmer would be able to devote his time to something that perhaps would be more profitable. In those cases where first-class butter is not made, the milk or cream is worth more sent to a creamery than is the butter after it is made on the farm. There is a good demand in our leading markets for first-class dairy butter delivered to customers weekly in a neat and attractive form, and farmers favorably located are supplying large quantities at good prices. This can only be done by the most extreme cleanliness and regularity in all things connected with the production and delivery of the butter. The best methods of private dairying in all details should be thoroughly discussed at institute, dairyman, and grange meetings, and we believe something has already been accomplished in this direction. A large amount of the butter made in this State will continue to be made in private dairies, and while we would encourage the establishment of creameries wherever practicable, we would not forget to stimulate by all possible means the production of a better quality of private dairy products.

SELECTION AND BREEDING OF DAIRY STOCK.

The business of dairying can only be regarded as a manufacturing industry. The pasture grass, hay, ensilage, grain, and roots are the raw material, and milk, butter, or cheese the manufactured product; the stable the factory, the cows the machines, and the dairy-room the finishing-room, where only skilled labor can be employed.

The manufacturer of fine fabrics finds in the market various machines, each adapted to specific results. He would not expect to meet competition successfully without employing the best machines with all improvements. He would also select a machine that would convert raw material into a marketable product with the least possible waste. The machines we select for our manufacturing have much to do with the profit or loss. In the natural or wild state the cow yields only milk enough to nourish her offspring a few months, or weeks even, and then goes dry the remainder of the year. In different countries and under various conditions of soil and climate this natural tendency has been changed and modified to meet the requirements of the people. In this manner, with the aid of judicious selection and feed, the various breeds of dairy cattle have become established and developed, adapted to the production of milk, butter, or cheese, according to the needs of the breeder and the peculiarities of the country. The natural tendency of all breeds is to return to their primitive condition, while their desirable dairy qualities may be still further developed by judicious selection, breeding, and feed.

The native or scrub stock, as it is called, forms the great bulk of the stock of the country, and of the 11,000,000 cows in the United States 10,900,000 belong to this great family, so often ignored by the proprietors of herd-book stock. This is the stock we have to deal with, and it is from this as a basis that we must build up our dairy cattle if any progress in this direction is made. The dairyman who purchases dairy animals for practical business will seldom find it advisable to select pure-bred stock. The necessary expense is often beyond his reach, and the care and attention which pure-bred stock demands will not always be

given by a man who will be successful with grade animals. We could name many instances where a successful dairyman has been misled by the experience of wealthy breeders whose influence and association enabled them to realize marvelous prices for pure-bred animals. For the practical dairyman who depends upon his dairy for an income, a selection of high-grade cows should be made. These can be purchased for about one half the price of registered animals of the same butter-producing capacity. There will always be found wealthy men who can well afford to handle pure-bred stock, and from whose herds the farmer will always be able to obtain male animals of better breeding than he could possibly afford the means to produce. From their ample means and association they will find it profitable when the practical farmer will not.

In selecting dairy cows it is usually with the expectation of keeping them for a series of years in the herd. There are few instances where it is profitable to buy and sell often. It is not only desirable to know that the cow herself is a deep milker or superior butter-producing animal, but it is also essential to know that the dam and grandam possessed these qualities in a marked degree. It is one of the most difficult things connected with dairying to buy in the market any number of cows that will prove profitable and satisfactory. Using the best judgment, a poor animal will frequently find its way into the herd. A model useful dairy cow may be described as follows: She will have a fine, long head, broad between the eyes, and a thin, wide muzzle; the eyes are large and of a mild expression; the neck thin and long; the ears thin and covered inside with a deep yellow skin; the fore quarters are light and thin and the whole body has much the shape of a wedge, increasing in size to the rear; the legs are thin, with fine bone; the belly is large and deep, with large capacity for food; the back is broad and straight and the ribs well rounded towards the rear; the bones of the rump wide apart; the tail long and thin; the thighs thin and set widely apart; the udder large and full, especially behind, and the milk vein, so-called, which is the large vein leading from the udder and passing into the abdomen, should be full and tortuous in its course. A fine horn, a deep yellow skin, and a

general elegance of form, without any heaviness or beefiness in any part, are also important indications of good quality in a cow for the dairy. Henry Stewart, the well-known authority in dairy matters, says: "Many breeders place great weight upon the form of the escutcheon, or the hair which grows upward on the back part of the thighs and udder. A well-shaped escutcheon can do no harm, but there are numerous excellent cows which have no escutcheon to speak of, and the business dairyman may well afford to ignore it."

In selecting cows it is well to select young animals, for the producing capacity can often be developed and improved by proper care and feeding. In fact, the feed and care of a young animal is of the utmost importance and upon this much of its future usefulness in the dairy depends. It is especially desirable to have a young cow after her first calf continue in milk well up to the dropping of the second, thus helping to establish the milking period. This is an important matter, and the cow at this period should be in the hands of one interested in her future usefulness. Therefore, we say, considering the scarcity of mature cows of superior quality in the market, and the importance of correct care of the heifer during her first milking period, the dairyman who selects cows in any considerable number for continuous work in the dairy will probably select many young animals.

A cow should not be selected simply because the price seems low, for an inferior cow is dear as a gift. Harris Lewis facetiously urged at a dairymen's convention that any dairyman having a poor milker would make money by giving her away, and if he had scruples in this regard he might make a present of the beast to his mother-in-law. We do not believe any dairyman can afford to keep a cow that will produce less than 225 pounds of butter per year. The cows of New Hampshire average to produce less than 125 pounds of butter per year. The difference of 100 pounds of butter at 30 cents per pound amounts to \$30 per year, or \$300 in 10 years, the average milking life of a cow. In a herd of ten cows the difference would be \$3,000 for the above period. It is a lamentable fact that there are dairies in our State that are doing little, if any, better than the 125 pounds,

keeping the animals simply because the owners do not realize the difference between a good cow and a poor one, and because their cows are worth perhaps \$10 more for beef when they are through with them in the dairy. Such management in any other business would lead to immediate bankruptcy. We believe there is a crying need for reform in this direction. Select machines that will run ten months in the twelve, that will utilize the feed in the secretion of milk rather than in storing up flesh, in other words, select cows specially adapted to the purpose for which they are to be used. Such cows are not plenty in the market and it requires judgment and skill to select them.

No dairyman, as we have said, can afford to follow the practice of buying dairy cows, although this is sometimes necessary in starting a dairy herd or in increasing the number before any heifers are old enough for breeding. The herd should always be replenished with heifers from the best cows, reared in a way to develop a strong constitution, a vigorous appetite, and a gentle disposition. In breeding dairy stock we should bear in mind that "like produces like" but not always what we expect. We may have in our herd a superior butter cow, and her dam and grandam may have been her equal, and yet her calf, from an approved sire, may be worthless for the dairy. This is one of the risks we encounter in breeding from grade stock. There was probably in the line of breeding of the cow a strain of inferior blood, and flashing across the offspring it produced the result mentioned. In a well-established dairy herd this risk will be small. We are taught that the iniquities of our fathers visit the children even to the third and fourth generation thereof, and the iniquity of a breeder in using inferior blood will often show itself years after. There is no excuse for using other than a pure-bred sire. He must also come from a breed, and a particular strain of that breed, noted for its milking qualities. We should not place an animal at the head of our herd simply because he is a Jersey, a Holstein, or an Ayrshire, for all these breeds, the Jerseys in particular, have been bred for points, in some instances until their constitution and milking qualities are defective. We should study carefully the pedigree of the animal we are selecting, and should know that the breeding is correct and that the

ancestors were noted performers. For breeding purposes the sire constitutes one half the herd and too much care cannot be exercised in this matter. A liberal outlay for the right animal will often repay many times the cost. If a cross is effected with satisfactory results it should be continued by resorting to pure-bred males and not by the use of any grade thus obtained. The moment the line is crossed and the pedigree broken, uncertainty commences. The grade to all appearances may be a superior animal to the pure-bred, but the certainty of imparting to the offspring the desirable qualities of the breed will be diminished.

The relative influence of the sire and dam upon the offspring is not well established. There are those who claim that the superior milking qualities are transmitted through the male offspring, while others claim that the general form and bony structure are mainly inherited through the sire. It is agreed by all that both sire and dam have some influence in developing every quality of the offspring, and hence it is extremely hazardous to use any but the best breeding animals at our command. The bull should have the special characteristics of the cow, differing however in development, as becomes the male animal. The form of the head and body, the large mild eye, the full, clear, waxy horn, the yellow lining of the ears, the yellow skin, and the general lightness and elegance of form, all go to indicate a good animal for the dairy.

The breed for the dairyman to select, as we said before, will depend upon the product required. If milk is sold, doubtless the Holstein or Ayrshire will meet the required want. Cheese making requires the caseine of the milk, and we find it abundantly supplied in the milk of these breeds. For the manufacture of butter the fat of the milk is required. This exists in the milk in minute globules and is composed of six varieties of oil, the principal of which are olein and margarine. These different oils each have a separate function to perform in the composition of butter. The larger the quantity of fat in the milk, the more valuable is it for butter making. The Jersey and Guernsey cattle have long been developed in their butter-producing qualities and no time is necessary to prove their adaptability to this purpose. A male animal kept for breeding should be given frequent and

regular exercise. Light work upon a farm, or in a power for churning or other purposes, will add to his usefulness and impart a more rugged constitution to the progeny. He should always be kept in perfect subjection to the will of the tender, and never be given an opportunity for misapplying his muscular power. However gentle he may seem, at any moment he may prove worse than "a bull in a china shop."

Breed is to a great extent dependent upon feed. Feeding and training have developed the various breeds of dairy animals to their present condition and this can only be continued by judicious feeding. The mistake is often made that the progeny of a pure-bred animal can be subjected to all abuse, such as scanty feed, exposure to storms, and rough treatment, and still expect the breed to overcome all these matters. Breeding and feeding go hand in hand and both are necessary for building up and developing any herd of cattle. Improved breeds are worthless without liberal feeding, and, as a dairyman facetiously remarked, "The man who will not give his animals proper shelter, care, and feed will do better with the buffalo, for he is better adapted to withstand hardship and starvation than our domestic animals." The claim that is made for the improved breeds is that they possess the power of assimilating and utilizing the food given, over the amount required to sustain the system, for the production of a special product in a greater degree than scrub animals. A machine manufactures but does not create, and it is worse than folly to expect any cow to produce anything without material. The best breed in the world can do nothing without proper feed. A young animal should be bred so as to drop her first calf at two years of age or soon after. The advantage of this course is that the organs for the secretion of milk will be better developed by use, just as the muscles or other organs are increased in their functions by proper work. Experience proves that cows will yield a greater income by dropping their calves in the fall months rather than in the spring. Accurate tests have been made showing ten per cent more profit per cow from a dairy handled in this way, over the former practice of having all cows come in in the spring. A cow dropping her calf from September to November will yield the greatest flow of milk when dairy products are

of the greatest value and when the farmer has more time for giving his dairy proper attention. The fresh pasture grass in the spring near the end of the milking season will continue the flow of milk and increase the length of the milking period better than any other feed.

In breeding dairy animals we should not expect to reach desired results at once. We should engage in the business expecting to continue in the same line for a series of years, improving the quality of our herd annually. We believe in the direction of breeding there is a broad field for improvement. The subject should continue to be agitated by our agricultural organizations until its importance is more generally realized and until the annual production of our dairy animals is largely increased. It should continue to receive the attention of our best dairymen until their herds produce 300 pounds of butter annually per cow. We believe that with a proper selection for the basis of our dairy, bred to a pure-bred sire of a superior strain, and with judicious care in handling, growing, and feeding, our dairy production can be increased 50 per cent, using the same value of feeding rations. There is no better opportunity for a farmer desirous of adding something to the wealth of his town, to the agricultural prosperity of his State, and giving honor and respect to his calling, than by establishing and developing a superior herd of cows.

METHODS OF THE DAIRY.

For a starting point we will suppose the dairyman has selected or bred a herd of cows that will produce an average of 225 pounds of butter or 2,500 quarts of milk per cow annually, and there is no possible excuse for keeping animals that will produce less. There are certain principles that might be laid down as the constitutional law of dairying, the first of which would be cleanliness. This must be observed from first to last. Good milk or butter cannot be made unless the stable is kept clean, the cows are kept clean, and the milker is neat in his work. We hear a great deal about the poor butter sent to market, and the lack of skill on the part of the person who makes it, and his or her inability to make a good article, but in a majority of these

cases the milk has been entirely ruined for making first-class butter before it reaches the dairy-room. No amount of straining or scalding will remove the effect of filth once in the milk. Cleanliness is also essential in the process of separating the cream, whichever system is used, in ripening the cream, and in churning and working the butter. The greatest cause of inferior butter is the presence of dirt, either from the stable, the dairy utensils, or from the atmosphere where the milk and cream are kept.

The second constitutional principle is regularity. The cows should be fed and milked regularly. The cream should be ripened and churned according to certain rules, and all details attended to with regularity. There is no reason why a man's cows should not be cared for with as much regularity and system as any business man finds necessary. The old-time practice of doing things on the farm when most convenient will not bring success in dairying.

The third principle, which also applies with equal force to all systems of farming, is to produce the best. There is always a demand for first-class dairy products. We do not advise this with the expectation that many can reach the dollar-a-pound standard, for there is comparatively little butter sold at this price, and it is frequently more from the reputation of the producer than from the real value of the butter. The range of prices from the lowest grade to fifty cents a pound is made from the actual quality of the butter, and a large amount is sold in the Boston market for the latter price. Any one can hope to reach this figure with some degree of certainty by constantly aiming to produce the best. There is an increasing demand for superior milk and cream in our cities and large villages, and it is not unreasonable to expect that these products will soon be largely sent to the consumer in sealed bottles and command the same relative price that is paid for first-class butter. First in the methods of dairying comes that of feeding. The most economical fodder ration for dairy stock is that for the production of which the farm is best adapted. On farms adapted to corn culture, ensilage should be largely fed. It is universally conceded that good ensilage will make more milk and more butter than any other fod-

der. When fed in proper proportions with other feed there will be no bad effects upon the product. A feed of two thirds ensilage and one third hay is regarded as the most healthy and economical. Three tons of ensilage are equal in feeding value to one ton of the best of hay. Corn for ensilage should be allowed to become glazed before it is put in the silo, some Northern variety being considered more profitable than the large Southern. In ordinary seasons it can be grown and packed in the silo for \$2.50 per ton. On farms which, from the nature of the soil, are not adapted to corn growing, and are too rocky to be profitably cultivated by horse power, there will probably be no economy in ensilage. The best dry fodder for the production of milk is oats or barley hay; about three tons to the acre can be grown on the heavy soil of hill farms and will be found equally as profitable as ensilage on such land. The oats or barley should be cut at the first appearance of ripening, a delay of two or three days often reducing the feeding value of the crop ten per cent. Clover hay is the best variety of grass for the dairy, and dairy-men will do well to consider its value in deciding upon the variety of grasses to grow. Corn stover is more valuable than it is sometimes considered, and careful experiments prove it worth about three fourths the price of the best of hay per ton. In substance, we recommend for the main dairy fodder that for the growth of which the farm is best adapted. Forty pounds of ensilage and eight pounds of hay, or twenty pounds of cured barley, oat fodder, or hay, make about the requisite feed for a 1,000-pound cow.

The best grain ration will depend something upon the price of the different varieties. We are assuming that a portion of the grain, at least, will be purchased, for the bare feeding of the crops grown upon the farm will not sustain its fertility. A portion of the fertilizing material or supply is sold in every product of the farm sent to the market. As we have before stated, the dairyman must use judgment in determining what crops to grow. If he has "corn land," grow all the corn possible and supplement it with other grains; if natural "grass land," grow all the hay and cured fodder possible, buying the grain. In all feeding rations are found certain constituents, but compounded in differ-

ent proportions. One element of all feeding material is called albuminoids, and is the flesh or muscle forming portion of the feed ; other elements, such as starch, sugar, and gum, are called carbo-hydrates, and are used for the production of animal heat and fat. By long-continued and expensive experiments in Germany it has been demonstrated that an animal giving milk requires for the best results a feed composed of one part albuminoids to five and four tenths parts carbo-hydrates. We may experiment as much as we please, and we shall find that the feed giving best and most economical results will be compounded in the above proportions. From tables published, the constituent parts of all varieties of feed are given, and we can make the proper combination with a variety of mixtures.

An economical grain ration in connection with hay or corn ensilage, or both, would be gluten meal, corn meal, and wheat bran in about equal parts by weight. Cottonseed meal can be safely fed to most animals in limited quantities. Animals not accustomed to eating it will need to be fed sparingly at first. More than three pounds per day should not be fed to any animal if we consider her continued usefulness and the quality of the product. No better grain feed for the production of milk or butter can be given than two pounds gluten or cottonseed meal, three pounds corn meal, and two pounds wheat bran for a 1,000-pound cow. All cows of the same size do not have the same feeding capacity, and the amount will need to be varied to some extent. At the present market prices the fodder and grain ration recommended will cost about 17 cents a day, or about \$34 for the two hundred days that a cow is usually kept in the stable.

The best method of feeding dairy animals is twice, rather than three times, a day. By so doing more milk and more butter can be produced from the same feed ; the animal has a longer time for rest, and the secretion of milk is greater ; the food is more thoroughly masticated and digested. The food when first given passes only to the first stomach, and afterwards, in the process of remastication, more of its nutritive elements are made available to the uses of the animal. In connection with feed we desire to say that the odor of bad ensilage or a strong-smelling silo, or

the bad air of a filthy stable breathed into the cow's system, will affect the quality of milk or butter as much and even more than if food of a similar nature had been given. The secretion of first-class milk can only be had by keeping the animals in a pure and wholesome atmosphere. Milk is composed of the following constituent parts in about the proportions given : Water, 87 per cent ; fat, 3.5 per cent ; sugar, 4.5 per cent ; caseine, 4.4 per cent ; ash, .6 per cent.

Water in pure milk varies from 83 to 88 per cent, and the fat from 2.6 to 6.28 per cent. Milk for the market must contain by law 13 per cent solids, while in some States a certain per cent of the solids are required to be fat. The fat, which is the part used in the manufacture of butter, exists in the milk in minute globules, varying in size from 1-2000th to 1-8000th of an inch in diameter. In the milk of butter-producing breeds these globules average larger than in the milk of other breeds. They are so small that it would require twenty of them, placed side by side, to equal the thickness of an ordinary newspaper. They are of less specific gravity than the other parts of the milk and as soon as the milk is drawn from the cow their tendency is to rise to the surface. It is claimed that disturbance of the milk after separation has commenced has a tendency to destroy a complete separation, hence milk should be strained into cans or pans for the cream to rise as soon as drawn from the cow. When the separation is made by the centrifugal process, and the milk heated to a proper temperature, there will be no perceptible difference whether the milk is immediately separated or not. The thoroughness with which the fat is separated in private dairies will vary but little by the different systems, when each is run in such a way as to secure the best results. The old-fashioned pans will make just as good butter and as much of it, but more work and expense are required to keep the milk at a proper temperature for a complete separation. A tank of water, with the milk submerged or left open, can be regulated with less expense than can the temperature of a dairy-room.

When cream is kept some time before churning it should be kept at a low temperature until ready to ripen ; it should then be heated to about 65 degrees and frequently stirred during the

ripening process. The agitation of the cream allows the oxygen of the air to come in contact with the particles of butter fat and this increases the fine butter flavor. It should be churned when slightly acid, at which time it will have become slightly thickened. No sweet cream should be added after the process of ripening has well commenced, if within a few hours of churning, as the fat will not be recovered in the churn. More butter fat is wasted in the buttermilk by not having all the cream in proper condition to churn than in any other way. The cream is churned at a temperature of from 62 to 66 degrees, according to the fancy of the dairyman, and should require not less than twenty minutes. When the butter has reached the granular form the buttermilk should be drawn off and the butter thoroughly washed in the churn. It is important that this be carefully and thoroughly done. After the salt is added it should be allowed to dissolve before the butter is worked at all, or the grain of the butter will be ruined. Working butter is almost obsolete, for when thoroughly washed it requires only working enough to press into proper shape.

A common cause of complaint in butter is white specks. This is traceable to one of two causes: either the cream was raised in open pans and the cream and milk allowed to become too sour before it was skimmed, or during the ripening process the cream was raised to too high a temperature and the caseine changed to curd, and in either case no amount of washing or working would remove it. Another frequent cause of complaint is lack of rich butter flavor. As we have already stated, this is usually the result of filth in the milk or absorbed from the atmosphere where the cream was raised or ripened. In some cases it results from poorly fed cows. Butter loses its best flavor soon after it is made, and can be sent to first-class customers only when fresh. No butter is so good after it is one week old as before. The shape in which butter is sent to market has something to do with the selling price. The same butter will sell for more if put on the market in shapely prints than if sent in round balls with the finger marks still visible. The hands of the butter-maker should never come in contact with the cream or butter. It can be handled with ladles as fast and will be more satisfactory.

The most profitable disposition of the skimmed milk is a matter of no small importance in the dairy. At least a sufficient number of heifers from the best cows should be raised to replenish the dairy herd. These can be grown upon skimmed milk, with the addition of a little grain, and need no whole milk after they are two weeks old. Butter fat is not the quality of the milk most necessary to the young calf for the development of a useful dairy animal. The caseine, which is still left in the milk, is the muscle-producing element, and although the animal may not be as heavy at eight weeks of age, yet it will be equally valuable for the dairy when the milking season arrives. The balance of the skimmed milk can be fed to well-bred pigs under seven or eight months of age at a value of one half cent per quart. Probably there is no way in which more can be realized than in this. The importance of feeding it upon the farm is apparent from the fact that the fertilizing material in milk is the ash, and where a ton of whole milk or skimmed milk is sold from the farm it carries with it \$3.40 worth of fertilizing material, while the butter fat contained in the same quantity of milk would have a fertilizing value of but 40 cents.

This leads us to speak more fully of the fertilizing material obtained by the practice of dairying. As is well known, the valuable elements of all fertilizers are nitrogen, phosphoric acid, and potash. The price of all commercial fertilizers is based upon the market price of these elements. Chemists have been able to tell us the amount of nitrogen, phosphoric acid, and potash in the fertilizer obtained from feeding the different grains and fodders. For instance, the fertilizing material obtained in the feed which we have named for a cow 200 days will be as follows: 1,600 pounds hay, \$5.24; 4 tons ensilage, \$5.84; 600 pounds corn meal, \$1.82; 400 pounds cottonseed, \$4.96; 400 pounds wheat bran, \$2.68; total, \$20.54. This is upon a basis of nitrogen at 17 cents per pound, phosphoric acid at 6, and potash at 4½ cents. The total amount represents the price which the farmer would have to pay, delivered on his farm, for the same amount of plant food in the form of commercial fertilizers as would be left on his farm feeding the above fodder. The importance of these figures is well worth consideration. When we consider that

the cows of New Hampshire, to-day, produce on an average but about 125 pounds of butter per year, an amount that has been reached by a single cow in 17 days, we do not wonder that many important facts in connection with dairying have failed to be appreciated. What is needed by the dairy industry in our State to-day is better cows, more economical feed, and more skill in the dairy-room. These three things, which are possible on every farm, will increase the value of our farm productions 50 per cent, and increase the value of our farms with each succeeding year.

AGRICULTURAL ORGANIZATIONS.

GRANITE STATE DAIRYMEN'S ASSOCIATION.

SECRETARY'S REPORT.

As there was so much disappointment manifested by dairymen who assembled as representatives of a large number of towns, both in and outside the "Granite State," in the abrupt and unfortunate termination of last year's test of methods, it was decided by the executive board of the association to accept a proposition from Prof. Whitcher, director of the Experiment Station at Hanover, to continue the tests at a meeting to be held at that place in connection with the Board of Agriculture and the station. This meeting was held the second week in January, 1889, subject to rules proposed by Prof. Whitcher and adopted by the executive board, as stated in bulletin No. 7 of the station. This bulletin will be published as substantially a part of the report of the secretary, as an acknowledgment in part of the indebtedness of the association to the director of the Experiment Station for the interest he has shown and the very substantial assistance he has rendered, without which it would have been impossible for the association to complete the tests by careful chemical analyses, in its present financial condition. Otherwise it seems very proper that this bulletin should appear in connection with these experiments, as the New Hampshire station is intended to devote much of its labors to aid the important interest which we represent; the board of control and trustees having stocked the farm with specimens of four of the leading milk and dairy breeds.

ANNUAL MEETING AT HANOVER.

In continuation of the meeting held at Culver Hall, Hanover, Tuesday, January 8, a meeting was held at the same place on Thursday, January 10, the day following the meeting of the State Board of Agriculture.

The meeting was called to order by President J. M. Connor, of Hopkinton. A letter from the treasurer, Charles N. Clough, of Canterbury, was read, and his report adopted. The committee on nomination reported, and their report was accepted and adopted. The old board of officers was elected, except that the vacancy by the death of S. W. Buffum, of Winchester, was filled by electing S. F. Merrill, of Keene. The report of Hon. H. K. Slayton, the butter expert, was next in order. It was as follows:

“Your committee, who has been appointed to the difficult task of judging which are the best specimens of dairy and creamery butter, submits the following report: As each one of the makers of the sixty specimens may think he makes the best, and as only six out of the number can be awarded premiums, the larger number must be disappointed. The dairy exhibit is a large one, and some of the specimens fine; others lacked flavor, some were sour, some were bitter from keeping the cream too long before skimming or churning, and others had a barny flavor. No. 116, B, was of fine flavor, good grain, texture, and color, and worthy of first premium; made by W. D. Baker, of Quincy. No. 103, B, of excellent flavor, fair grain and texture, light cream color, worked a little too much, and is awarded second premium; L. T. Hazen, Whitefield. No. 105, B, is only fair in flavor, of good grain, texture, and color, and is awarded third premium. No. 106, B, is equally good in flavor and color, but not quite as good in grain as No. 105. The two last made by N. H. Experiment Station, Hanover.

“The exhibit of creamery butter is good, and, considering the time of the year, I call the quality fine and a credit to the farmers who make the exhibit. A great advance in the line of creamery butter has been made by the farmers of this State in the last decade. Exhibit No. 109, A, made by the West Lebanon cream-

ery, is of excellent flavor, grain, texture, and color, and is awarded first premium. No. 102, A, made by C. G. Britton, of Keene, is of fine flavor, grain, texture, and color, and is awarded second premium. No. 101, A, made by the Hanover creamery, is of fair flavor, grain, texture, and color, and is awarded third premium. All of which is respectfully submitted.

“H. K. SLAYTON.”

After the conclusion of the business meeting, Mr. Slayton responded to several inquiries regarding the tests which had been made by him of the dairy exhibits. He stated that the large business firm which he represented had formerly obtained three fourths of its supply of butter with which to supply customers, from Washington county, Vermont. This butter was made by the old-fashioned dairy system. The manufacture of butter in that locality still held its own, but it had not advanced. His firm did not handle a hundred tubs from that county at the present time where it disposed of 1,500 tubs received from other sources.

QUESTION: If the cream is gathered every day at the same hour, and the system carried out thoroughly, as is done in the best cream-gathering establishments, with a strict set of rules to govern patrons, and insisted on month by month, is it not possible to make an extra article of butter in that way?

ANSWER: Yes; and the better way would be to have each patron a co-operator in the selling price, so as to insure his cleaning the cow's bag with a sponge where it is at all dirty, and observing cleanliness in every way in the setting-room, and being sure to keep the smoke away. More than half of these exhibits here to-day have a flavor of smoke in them, wood smoke or coal smoke, smoke from the stove or from the furnace.

Mr. Slayton gave a description of the examination which had been made of the exhibits of butter, for the purpose of showing the defects which became apparent under the tests applied. At the conclusion he gave emphasis to the fact that in his opinion “the dairy system must go.” If the improvement in butter making is to be kept up in the State of New Hampshire, there could be no question that one of the results sure to follow would be the

bringing up of the prices of the farms throughout the State. [Applause.] And more than that, he believed that the farmers of the State might take courage in the prospects of the near future, for the prices of farming lands had reached the lowest ebb and must now advance.

Mr. Currier, of Hanover, made an earnest and persistent appeal that young men be encouraged to remain at home upon the New Hampshire farms instead of flocking to the West.

J. M. Connor, of Hopkinton, president of the Granite State Dairymen's Association, then delivered his annual address.

ANNUAL ADDRESS.

BY PRESIDENT J. M. CONNOR.

Members of the Dairymen's Association, Ladies and Gentlemen:

We are assembled to-day, under the auspices of the Granite State Dairymen's Association, to diffuse if possible a better knowledge of this growing and important industry among the people of our State. It will be my purpose briefly to treat this subject in a general way, as those who are to follow me will take up the matter more in its details.

New Hampshire occupies a high rank among the New England States for the quality of her men and women. According to her size and population, no State ranks higher for producing the best type of minds, who have gone forth to mold the destiny of this great republic. Her geographical conformation and climate, which invite multitudes of people from all parts of our country to renew and recreate their physical and mental being, would seem to afford all the elements for raising the best type of manhood. In all her manufacturing and railroad enterprises she justly takes a high rank. If there is "one thing more thou lackest" it is in the character and influence of her agriculture. If there is discontent anywhere, it is among her rural population. If there is incompleteness, lack of method and system, disregard of the laws that govern forces, here we find it.

While we would advocate the claim of the cow to New Hampshire farmers, as best calculated to lead them to industrial pros-

perity, we are confronted with the fact that in no department of farm life is there greater need of conformity to law and system than here. Quality will here correspond to our knowledge of laws and details. We would in no wise countenance or imply a disregard of the best methods in all departments of farm work ; yet it is nevertheless true that every farmer's pork, his beef of corresponding fatness, his eggs, his poultry, his hay or grain, his apples or vegetables, command about the same market price. Nature controls its shape and size and enters into all the details of its wonderful construction.

True, man must plant, must hoe and harvest, and the dealer or the consumer cares but little whether the producer is well versed in the details of his business or not. Not so in dairying. From the outset study and judgment are essential. We first consider how to breed, to combine all the best points ; then study the combination of feeds, which by the aid of science is now becoming a matter of interest ; just how much to feed to each animal at a profit. The testing of each cow by accurate methods, so as to weed out all unprofitable animals, then becomes necessary. Then the milk must be considered, — by what methods to separate the butter constituents, the ripening process, what churn, and how to churn, how best to remove all foreign substances from the butter, salting, working, and stamping or packing, and last, though not least, marketing. Through all this common sense, aided by science, has a broad scope for its gratification.

As intimated in our opening, we point with pride to the sons and daughters who have gone from New Hampshire to adorn and ennoble every vocation in the walks of life. If we would maintain that standard we must remember the laws that produce such results. Activity of mind, that is required for the investigation and practice of such an industry as this, will leave its impress upon those who come after us. The wide range between those who work out such an industrial problem as that of dairying, and those who only wield the hod or spade at the sand bank, shows the measure of usefulness each will impart to his kind.

These many years our sister State, with her green mountain pastures, has held a front rank in the quality and production of her butter. New York holds a high rank also. Later on, as our

New England element strove westward, there came to us from distant States the claim for championship in this great industry. During this struggle for supremacy, little rock-ribbed New Hampshire could not be heard. Her merchants and consumers passed her by as of little or no account. But hearken ! A change is coming in the Granite State ; her voice is heard. In the great metropolis of New England, the guests of some of her famous hotels are feasting on New Hampshire butter. Some of our great mountain houses patronize home productions. It was a New Hampshire butter-maker, and one of the few who first moved with us in the formation of this Dairymen's Association, who won the laurels at the great butter trial recently held in New York city.

We will illustrate a point by a personal incident. Some eight years ago, having the agency of the Cooley creamer, a young farmer from the adjoining town of Henniker called upon us and purchased one for his dairy of some six or eight cows. Being successful in this limited way he soon began to purchase a little cream of his neighbors. Step by step he increased his purchases over his town to adjoining towns ; his butter found a sale in Massachusetts, and found its way to Young's Hotel, which became a large purchaser. Next, the proprietor of that hotel conceived the idea of building an extensive creamery in New Boston, his native town, there to have all the butter manufactured and cream separated for the use of this magnificent public house. He employs this humble beginner at a large salary to superintend this new enterprise, which will give a new impetus to farming in his native town. The point I wish to enforce by this incident is that New Hampshire butter is getting into good company and she need not be diffident about enlarging her acquaintance.

This brings us to the consideration of the rapid strides we have made within fifteen years in this State in the line of dairying. Now, upwards of twenty creameries are in operation, with scores of towns and localities agitating the question of their formation. With milk and cream gathering over a large proportion of our railway system, we have just reason for congratulation over the progress we have made. In every town in our State, where we find those turning their attention to this industry, we find better

methods applied to all branches of farming. We find increased productiveness of the soil, more ready cash, more evidences of contentment, a more willing ear, and active minds to discuss methods; in fact, a truer idea of what constitutes the thrifty, independent farmer. Our hopes of farming in the future lie not alone in the products of the cow, but also in its kindred profits. Pork raising is assuming a new phase, and it is coming to be understood that in connection with butter making it is one of the leading sources of profit.

It is an old adage that "the proof of the pudding is in the eating." We will give the past year's record of our own dairy and hog products; not that it is anything remarkable, but as proof that our faith in these things is no idle assertion. From 12 cows we produced 2,650 pounds of butter at 25 cents a pound — about the average net profit realized by creamery associations, — \$562.50; 10 calves, \$80; 3,250 pounds of pork at $7\frac{1}{2}$ cents, \$243.75; aggregating \$987. We desire particular attention to the facts relating to the pork product; ten pigs were slaughtered, part of them in spring and part in fall, at from eight to nine months of age, weighing 3,250 pounds. Their entire food was milk and meal. They ate 70 bags of meal, costing \$85, which, subtracted from their market value, leaves \$158.75 to be credited to the milk, besides quantities being fed to hens and used for culinary purposes. Bear in mind also, my hearers, that in this annual sale of butter and pork, only a fractional part of the fertilizing elements are sold off the farm. Twenty-five years ago not a score of farmers could be found in New Hampshire who had an intelligent conception of the value of skimmed milk for growing animals. I fear we little realize to-day the full value of whole milk as a food for man. It cannot be surpassed in its completeness as a food for children; nay, even in its cheapness for promoting physical development. If the pure, rich milk from our Jerseys and Guernseys could be sold from the almost innumerable fountains that in every city and village pour forth their flavored drinks of little or no value; if the thousands of saloons that now deal out all manner of drinks, from simple beers to distilled damnation, to our young men, could be induced to offer to the public a glass of cool, refreshing, and life-sustaining milk for three cents, who can estimate the glorious results that would follow!

The adulteration of food is becoming a question of great magnitude, and one that concerns every class and condition in life. Two of the most prominent branches of farming to which we urge especial attention to-day, and upon which we would place our chief reliance in the future, are threatened in their value by adulterated compounds. Every interest of the producer of a pure article, or a cheaper compound even, should demand that those who manufacture imitations in whole or in part of butter, lard, and cheese, should label every package with the amount and proportion of each ingredient that enters into its composition. This is the dictate of plain honesty. It is demanded in numerous industries. The manufacturer of commercial fertilizers is compelled to show his hand. The vender of milk must keep his goods up to the standard. We have a law on our statute books requiring compound butter to be colored pink, that the consumer may know what he is purchasing. If this law is just it should be enforced, otherwise repealed. We commend the action of the Board of Agriculture of our State in their efforts to enforce this law, in the interest of our farmers. They should stand as a unit in their support. A government of the people and for the people should protect the unorganized masses, whether producers or consumers, against combinations and trusts that would seek to uproot honest toil and jeopardize our good name in all countries that purchase our surplus products.

W. D. Baker, of Quincy, whose butter received the first premium, believed that the creamery is taking a great burden from the backs of the farmers. There are many towns where the population is spare and the people can't get cows enough together for creamery purposes. The subject of butter should interest us all. We should make the best butter possible. Dairying must be conducted on business principles, or the dairyman will find himself running a race with the sheriff. If dairymen do not make such an article as the market requires they will get left. If your neighbor gets 35 cents per pound for his butter and you don't obtain it, something is the matter with you and you will not have to look a great ways to find what the trouble is. There never has been or will be a time when the supply of gilt-edged butter equals the demand. It is next to impossible to make good butter from the

milk of poor cows. Perhaps the Jersey holds supremacy as a butter cow. Farmers in New Hampshire can't afford to get large herds of full-blooded animals. Perhaps high grades are the best for our farmers. I believe in a cross of pure-blood Jersey and Holstein. The result will be rich milk and a good deal of it; and they are better adapted for the farms of New Hampshire than either of the pure bloods. Be kind to your cattle. It will pay in the milk pail. Give cows clean, warm quarters, use absorbents every day, and deodorize as often as necessary. Keep the cows' udders clean. Give plenty of pure water. Feed plenty of wholesome food. Don't give cows any water you would not use yourself for the same purpose. I should be pretty thirsty to drink tepid water, and the cows agree with me to perfection. I don't believe in freezing water. Give pure spring water at a temperature of 36°, 38°, or 40°. I urge the importance of having the women supplied with proper, new-fashioned dairy appliances. Cream should be properly ripened and churned at the right temperature. An accurate thermometer is necessary. I don't believe in making a thermometer of my finger. I think if butter does not come in thirty minutes something is wrong. I have spoiled butter by letting it get too hot. White specks will result if the cream when near the ripening point is heated. I churn at 65° in the summer and 67° in the winter, reducing to 57° when washing, thereby causing the butter to stay in the granular form. I practice dry salting. I let the butter stand twelve hours. I salt according to what customers want. I keep cream at from 40° to 45° until I have enough to churn. I churn several skimmings. I feed witchgrass hay and clover, 15 pounds per day to cows of about 900 pounds' weight. I also give each 10 pounds of corn stover and bean vines, 2 pounds of shorts, 2 pounds of corn meal, 1½ pounds of cottonseed meal. This feed contains 2.12 of albuminoids and 13.04 of carbo-hydrates and costs 16.9 cents per cow per day.

QUESTION: How long do you keep your cream at a temperature of 40 or 45 degrees before you put it up to a temperature of 60 degrees to ripen?

ANSWER: I am obliged, as I do not have a large dairy, to churn several skimmings. I take the first and keep it until I get the second, or until I can get a sufficient quantity together.

QUESTION: At what stage of growth was the witch-grass cut?

ANSWER: The witch-grass is cut when the clover blossoms begin to turn brown. It does not do to let the witch-grass stand a minute after it stops growing; otherwise it will be of a tough fiber.

C. M. Winslow, of Brandon, Vt., member of the Vermont Board of Agriculture, was introduced by the president and spoke upon "Stock Breeding."

STOCK BREEDING.

BY C. M. WINSLOW, OF BRANDON, VT.

I have to beg your pardon for not appearing before you with a paper to-day. I received a few days ago a program in which my name was announced to speak upon "Stock Breeding." I have had no time to make preparations for this specially. In thinking over what to say, when coming here, I supposed I should speak on special breeding, but after listening here for a time, my attention turned towards stock breeding, and that kind of cattle called dairy cattle. Since I have been here I have been requested to speak about horse breeding; so, if I have time, after I get through with the subject of dairy breeding, I will speak about horse breeding.

It is a question of vital importance whether the cow that you are keeping is to give you 100 pounds of butter or 300 pounds. It is of vital importance, if you are selling milk, whether your cow will give you 1,500 quarts of milk in a year or 3,500 quarts. It is of vital importance to you whether you are able to make 300 or 600 pounds of cheese in a year from the milk of your cow. None of these are fanciful amounts. Any of you ought to have cows that shall produce 300 pounds of butter or 3,000 quarts of milk. None of you should be satisfied with less than 600 pounds of cheese. The 300 pounds extra of cheese are profit. Milk from 2,500 to 3,500 quarts is profit. Now, how can you obtain this? In what I have to say on dairying I shall make three important points to be urged, namely, breeding, feeding, and selection.

The first that I ask you to consider is the question of careful and intelligent selection, and this is something that has been

going on from the time when Abraham made butter down to now. From the earliest time that we have any statistics, to the present time, it has been going on by natural selection. The original stock, in all classes, originated probably from a few specimens. Those, by the action of the owners in taking them to different parts of the world, and by subjecting them to climatic influences, and by feeding, have changed themselves. No man in early times laid himself out to prepare a cow that would make cheese, or that would make the most butter, or a cow specially adapted to give a large supply of milk, but the natural needs of each man led him to cultivate that which suited him best in his own situation. Therefore I will skip over that, and come down to the cattle that we produce at the present time, which are adapted expressly to different purposes. I will speak first of those which are intended to be used merely as dairy cattle.

I have sometimes been surprised in examining stock at the fairs to discover in those beef breeds a cow showing that by careful handling she is better adapted for a dairy cow. That simply goes to prove that the animals take back occasionally to some foundation stock. The breeds at this time used for dairying especially are the Holstein and the Ayrshire, the Guernsey and the Jersey, and perhaps the Devon and Shorthorn. I might say that I include these two last, yet they are not as a rule adapted to these two branches. As to the Holstein and Ayrshire, while they may make quantities of butter, while they may in some instances prove themselves good butter-makers, yet it is conceded that as a general rule the Guernsey and Jersey are particularly adapted to butter. The gentleman before me stated that he thought a cross between the Holstein and Jersey would be the best for New Hampshire. Gentlemen, that is bringing together diametrically opposite characteristics. You may find in your herd a Jersey that is a very heavy milker, and you may find a Jersey that gives poor milk but a large quantity; you may find in your Holstein cattle those that will produce a large quantity of butter, but take the general run of the breeding of the Holstein on the one hand, and the general run of the Jerseys on the other hand, and you will not find enough of the Holsteins that, with the ordinary care that a farmer would give them, are as good butter-makers as they are cheese-makers. On

the other hand, while there are Jersey cows that will make good cheese, while some of them have proved themselves good cheese-makers, the ordinary run of the Jersey cow is best adapted for producing butter ; and these two are directly opposite. I do not say but that you may, after a long term of breeding, unite the Holstein and the Jersey and produce a half blood. That half blood may be more after the characteristics of the Holstein and not be worth a dollar for making butter, and it may take after the Jersey and be very valuable ; but is it worth the while for you to spend your time to form a new breed, when you have breeds right here among you eminently fitted for just exactly what you want ? You can through a long term of years take the Holstein and Jersey and make up a breed, and it may be like one thing and may be like another. You don't know what you are going to get. You may take a certain number of Holsteins and a certain number of Jerseys and get a certain number of cows. You may by careful weeding out and selecting for some type that you wish to produce obtain in a long term of years a type entirely different from these two, and one that shall tend towards the characteristics of the one or the other ; but, as I said before, you have just what you require for a large cheese-maker in the Holstein, and you have in the Jersey the characteristics fitted for making the finest quality of butter known on earth. Therefore, I say, do not waste your time. I would say, take those breeds which for a long series of generations of breeding have proved themselves characteristic butter-makers. I will then confine myself to the Jersey cow for a butter-maker. The Jersey cow has been bred, by reason of the force of circumstances, on the island of Jersey as a butter-maker. She is a small cow. There is no needless carcass there. She is a cow that on her native soil has had to produce a large amount of product for the food consumed, and, gentlemen, that is a very important item for you to consider in the making of your butter and cheese and producing of your milk, to have those animals that will produce the largest amount for the food consumed. It is worth very much to you whether your butter costs you twenty cents a pound or costs you thirty, if you are selling at twenty-five. On the one hand you make five cents and on the other you lose five cents.

Secondly, as to the matter of feed. It is claimed, and I suppose it is true, that you can take stock and breed in anything you like ; that the stock is simply in the hands of the man as clay in the hands of the potter. That I think is true. You may say that with dry clay a man can do nothing. I acknowledge it. You must place your clay in the proper position for working. So with stock ; you must work in the line of nature, in the line that has been marked out by force of circumstances which are beyond your control, as, for instance, the action of climate through a long line of breeding. That is what you must confine yourself to, and if you will work in that line, you can do anything you like with your stock. The long line of the Holstein cows in Holland was calculated to produce a large quantity of milk. The grass is luxuriant, the climate is mild, they are provided with a large amount of succulent food, — everything that tends to produce a large amount of milk. The Jersey cow has been bred not so far from the Holstein cow, but on the island of Jersey the cow is subjected to adverse influences. The climate is not so genial, the food is not so plenty. I never was on the island of Jersey, but I understand the islands of Jersey and Guernsey are rocky islands, and the market that the people have had, in connection with what the cows have been made to produce, is such that the people have come to produce a fine quality of butter. Now, as to the matter of feeding, while it is claimed by some that any feed will answer for a cow, I think you can change a cow in a few generations so as to make a butter-producing cow or a cheese-producing cow, by the feed that you give. I think that in the lifetime of a cow you may change her characteristics to a great extent. There was one cow, Mary Ann St. Lambert, which, by careful feeding with feed calculated to produce a large quantity of milk, was slowly and gradually changed. You may take exceptions to that, but I think you must inoculate that into the cow which will make her produce a large quantity of milk ; and there, gentlemen, comes in the fine point of breeding. By breeding into the cow these points, she has them in her system, and her stock inherits them. There is the point that we all ought to remember, that like begets like, that inheritance is the stronghold that we have in the matter of breeding. After we have

taken the natural condition of the animal, by proper selection and proper crossing we can add to those, and by proper feeding place in them proper qualities that they shall give to their offspring ; so that the dairy stock is in our hands simply as machinery, — that is to say, if we take the old established breeds. The trouble with the breed that my friend just before me mentioned, of the Holstein and Jersey, would be that they were spoiled, and that in his lifetime, or the lifetime of his son or grandson, he would have animals that would come out perfectly worthless for butter-makers. It is only through a long line of generations that these breeds have been brought down.

QUESTION : Is it not dangerous to cross-breed so antagonistic natures ? Is there not immediate danger of producing bad results ?

ANSWER : It is very much like planting potato balls. Cultivate them two or three years and have the potatoes large. So you can as to breeding ; you will find all kinds, some poor, some good. If any one likes to experiment, it would be an excellent experiment to try to breed them together. So I think and say this ; your butter-makers should breed in the right direction, feeding for that special purpose.

And then comes in another matter, the survival of the fittest. That the owner of the herd is obliged to do continually. He is obliged to have his standard, and select his cattle up to that standard. Every good cow will not produce a good calf. There are lines back of that, and the animal is liable to take back to some of its ancestors. It is a fact among Merino sheep, as I remember. They are bred for white wool. There is hardly one of them but that will sometimes have a jet black lamb. All he has to do is to kill that lamb and go on.

He must have a definite purpose in selection. He cannot feed to-day and starve to-morrow. He cannot breed from a good bull to-day, and to-morrow take the one that happens to come along. He must have a persistence that is unswerving. He must have these qualities in his mind so definitely that when he sees an animal he will know it and recognize it. That is the only way, I believe, that you can breed dairy stock ; that is, by the uniting of these three things.

The PRESIDENT : You spoke of feeding for this purpose. Can you give any definite information as to the course we should pursue in feeding ?

Mr. WINSLOW : I think the chemists of late years have produced tables which aid the breeder very much in feeding. They are calculated to bring out just these results. If he wishes to breed for milk, he has these tables ; and if he wishes to breed for butter, he has these tables. I think that these, so far as they have been experimented with and prove their truth, are very valuable. There may be some slight variations, but as a rule, I think they are on the right track. The Guernsey comes from the island of Guernsey and has proved a very good dairy cow, but it must be borne in mind that, if you take a cow away from all her surroundings, she is not very likely to retain all her characteristics.

A few words, before closing, as to the American trotting horse. It seems to me that it is advisable for every farmer to breed a few horses ; and to breed for a class of horses that people are willing to buy, and that is the American trotting horse. I do not know whether you have many Morgan horses in this section, but the majority of horses with us in the State of Vermont are of that line, which I will call for convenience the American trotting horse, or the roadster. That horse is made up of a few breeds. I will not call them breeds, for they are not breeds. They are acute qualities which have been united into one horse. The American horse, perhaps, for a foundation. If the State of New Hampshire is like the State of Vermont, take your own horses for a foundation. There is no better foundation in the world to build up a serviceable gentleman's driver than the American horse, because that horse has the first quality which is necessary, and that is sound constitution, good disposition, and willingness to obey his driver. It is worth everything to you, gentlemen, if you are riding along the road, to feel that your horse is safe, and to feel that if anything comes up suddenly, a train of cars, a boy with an umbrella, or anything of that kind, your horse will think it out whether it is wise to be afraid of that or not. It is worth a good deal to you to know that the horse has brains, that the horse is level headed. You know that a man who flies to

pieces is worth nothing. A man who can wake up suddenly and have all his faculties under his control and go to work systematically to put out a fire, you call him a level-headed man; and so I say of horses. There is just as much in a horse being level headed as in a man, and that is the quality of the American horse. The American horse, however, is not pure American. There are other qualities that go to make up the American roadster.

The market is right here at home. Your cattle, and your butter, and your cheese you have to send to market, and they send back what they please, but your horses you can sell here in your own State. You can produce them and have them under your own control until you do sell them. The American type of horse, the horse that brings the highest price for a gentleman's roadster, weighs 950 to 1,050 pounds, and is from 15½ or 15¾ hands to 16 hands high; a horse that has a good style of action, ready in hand, and that you can drive all day,—that is the horse that is all around about you. You can hardly drive out on any street without seeing one of this type of horses. I was in Wisconsin not long since, and I went to a place to see a class of horses being introduced as French coach horses. A gentleman led them out, and I was struck with the similarity of type to that of our American horse. The gentleman said that in France the type of horse used in the army, on the hacks, and as a driver, was that same type of horse which I saw before me. He asked me where I was from, and I told him I was from Vermont, and the man said to me, "Why, you have all the horses you want in Vermont." "But" said he, "why didn't Vermont years ago keep her horses? Why didn't she keep her reputation for having the very best breed of horses on the earth?" "If," said he, "she had bred her American horse, she would have stood above any State in the Union." And I believe it. Maine has been a rival in the breeding of horses. Kentucky came up along the valleys of Vermont and picked up her mares and took them to Kentucky, and has bred the Hambletonian. California came, and she has done the same thing. I advise you to take that horse which, as I say, will command the highest price in the market, and that is the gentleman's driver. If the animal does prove bad

as a driving horse, he will be a good carriage horse ; and if not good for that he is good to work.

A word as to horse fitting. Horse breeding is a legitimate business of the farmer, but horse fitting is not. If you have a good horse that you want fitted, get somebody else to fit it, who understands it and makes a business of it. Sell him for a good price when you can get it, and not undertake to spend your time in the business of fitting.

In the matter of raising colts, after you have selected a mare and a horse that are to your satisfaction, and you obtain a colt, begin immediately to break the colt, when he is a few days old. It is worth a good deal to have a colt in your hands that considers you of superior strength. Feed liberally with oats and bran for the first year. Do not starve him for the first year.

The PRESIDENT : Would you enforce that rule with regard to calves ?

Mr. WINSLOW : Not entirely. I like to have my calves, from the time I take them off from the cow, assume a cowy look. I feed them well to make good strong bone and muscle, and to have them of that shape, as much as possible, which a cow has with a good large paunch. I have been in stables where calves were all paunch. I do not want them that way, but I want them fed liberally, but not with that which would change the type.

QUESTION : Any reason why you should starve the colt ?

Mr. WINSLOW : None at all. I would give grain the first winter. I would feed, say, two quarts of oats mixed with from two to four quarts of bran, or from two to four quarts of each kind.

QUESTION : If you had plenty of skimmed milk do you think it would be better to give them more of that and not so much grain ?

Mr. WINSLOW : Yes. It is a custom and practice among Kentucky breeders to give all the grain they will eat, and they force them up to be about as large as common colts are when two years old, and then they begin to take away the grain. Then you get a good, strong, rugged frame to grow on, and, if you are going to starve them, then will be the time.

AFTERNOON SESSION.

Prof. W. W. Cook, secretary of the Vermont Board of Agriculture, was introduced and spoke as follows :

You are assembled here as dairymen, and one of the most important questions that you can ask yourselves is, "What is a good dairy and how can I get it?" Now we find, as we go around the State, a very great difference in opinion as to what a first-class dairy is. One man tells me he has the best dairy in his town. "Here my cows are making between three and four pounds of butter per week right straight along." Now that is pretty rough on the rest of them. Another man says, "Well, my cows are doing pretty well; I fed them two or three dollars' worth of grain apiece this last year, and they gave me just about 300 pounds of butter each." Now the ideals of those two men are evidently different. The one that was producing nearly 300 pounds of butter had a standard ahead of the other that he was working to obtain. He was not satisfied with 300 pounds, while the one that was getting less than 150 pounds was satisfied, for he was doing better than his neighbors, and that was all he cared for.

You do not need here to be told that 150 pounds a year is altogether too small a product from a cow. No man ought to be satisfied with less than 250 pounds per year. There are over thirty dairies in Vermont which get 18 or 20 pounds more than 300 pounds a year, on an average, from each cow, and I know that a good many dairies in this State are making over 300. There is no use for a man to put his standard at any less than 250 pounds per year.

You say, "How can we go to work to get that?" The last speaker this morning named three qualities that he considered important, — breeding, feeding, and selection. Now I know of no better proof that can be brought forward in proof of the excellence of his suggestions than his own dairy. He was too modest to tell you about it, and so I will. He is not breeding the cow which he recommended this morning. He is not breeding the Jersey cow because he is not breeding for butter. You remember he recommended those who were raising a dairy for butter to

raise the Jersey. He is not raising for butter, but for selling milk, and he is raising thoroughbred Ayrshires. But the principle is just the same. He had before him a standard, an ideal, which he wanted to obtain, and he reached it primarily by a system of selection, of testing, of which he did not tell you so much this morning as I might have wished that he would; so I will give you some of his methods, for it is the fundamental part of the raising of dairies. There are many of you now who are doubtless feeding as well as there is any necessity of, but I do not believe there is a man in this room who, if he would take his herd and test them systematically, would not find one or two cows that he would be glad to sell or even give away. What is the way of testing? What is the test which will be of value in determining which cows you want to get rid of and which you want to keep to build up to your standard? If you are going to breed for butter, you should not set your standard at less than 250 pounds. If you are raising milk, your standard should not be less than 5,500 pounds of milk per year. Mr. Winslow, who spoke to you this morning, exceeds both these numbers very materially.

In the first place, you must weigh the milk of your cows. Now I hear you say right off, "I cannot do that, it is too hard work." You have no idea how easy it is, and you will have no idea from my telling you until you try it. I will tell you how to do it, and do it with a very small amount of work. In the first place, get some spring scales. You do not want any of the scales that you have to move along your weight; you want something that gives your weight the moment you put your milk on the scales. The particular point is to have your milk-pails all of the same weight. If you find that they are different, take a little lead or solder and melt on to the bottom of them, and then file down until you get them just the same weight. It is a very easy operation. Then take your scale and set back the pointer which is on these platform spring scales. You will find a thumb-screw on the side by which you can adjust it. When you get through milking, put your milk on there and it gives you the weight at a single glance. At the Experiment Station we have printed blanks, giving a space at the side to write the names of

the cows, and a space to give the morning's and the night's milk. In Mr. Winslow's blank, there are thirty-one of these, so as to run for the month. As we do our testing by the week, running our experiments for a certain number of weeks, ours are made smaller, and we have a space for the sum of the morning's and the sum of the night's milk, and total for the week. We take a lot of these, say twenty of them, and drive a couple of nails right through the top of them and fasten them to a board; take a pencil and attach a string to the end of it, and fasten that to one side. Now how much time is it going to take you to weigh that milk? Rest your pail on there and read off your figures. How long does it take you to look and see that it reads ten pounds, and to take your pencil and write ten after you get ready for it? It will take you possibly a couple of hours to get things arranged for it, but when you have done that, a minute for a cow would be a very large allowance for the time required to make a record of that weight.

Now as to quality. I place quantity first and quality second. Weed out first according to quantity, and second as to quality. But for the farmer I should be perfectly willing to take testimony which the creamery manufacturer could not take, that is, I should be willing to weed out by measuring out. I do not give you that as an accurate test. We could not use that at an experiment station, and a man could not take a creamery and take that test, but for a farmer to weed out the poor ones of his herd that will do. These two things, more than anything else that I know of, will build up a herd with but very little extra expense, and with but very little extra time.

QUESTION : Do you consider a test churn reliable?

ANSWER : The test churn is pretty good for cream, but not very reliable for milk.

Resolutions were offered and a committee appointed to solicit members of the Legislature to consider the latter resolution. The committee were P. M. Rossiter, of Claremont, N. S. Huntington, of Hanover, and J. L. Gerrish, of Webster. The resolutions were adopted as follows :

WHEREAS, There appears to have been increased and bold violation of state laws regulating the sale of oleomargarine, therefore,

Resolved, That the Granite State Dairymen's Association appreciate and approve of the action of the State Board of Agriculture in prosecuting the law-breakers, and commend Secretary Bachelder for his faithfulness in duty.

Resolved, That the Granite State Dairymen's Association is in sympathy with the work of the New England Creamery Association, and will lend its endeavors to the extent of ability and jurisdiction. We also indorse the action and approve the judgment of the New England Association in selecting one of the executive officers of this association for its president.

Resolved, That, in the opinion of the Granite State Dairymen's Association, it would materially assist the dairy and agricultural interest generally in the State, if our Legislature would make a reasonable appropriation to aid the association in its legitimate work.

Remarks were made by E. L. Bass, secretary of the Vermont Dairymen's Association, C. H. Waterhouse, vice-president of the association, and others, the remainder of the time in the afternoon being spent in a general discussion of methods, a large number of dairymen filling the hall to its utmost capacity.

While waiting for the result of the tests at the evening session, A. W. Cheever, of the "New England Farmer," said he thought it unsafe to set milk in a bad atmosphere, notwithstanding it had been stated that warm milk had been run up to a high temperature and then set beside a cesspool for twenty-four hours and churned, making good butter. An animal killed for beef is spoiled if killed soon after eating an onion. He once spoiled a working of butter by leaving it, under unfavorable circumstances, while he went to dinner. Boston buyers can tell when the Pennsylvania farmers, of whom they purchase butter, turn suddenly to grass, in spring. He does not advocate a long time between salting and second working. It can never be handled as well as before it gets cold from first working. Salt gives color and reworking evens the color, and that is about all the use in second working.

Mr. Rossiter thought it would be well to hold one or two more meetings in some part of the State during the winter. Mr. Bachelder asked a rising vote in expression of thanks to Messrs. Philbrick, Gerrish, and Bridgman for their faithful and, as he believed, impartial labors. This was responded to by a full rising audience.

TEST OF DAIRY APPARATUS.

The following are the results of a test made at the New Hampshire Experiment Station, January 8, 9, and 10, 1889, and issued by a bulletin from the station.

The accompanying rules were read before and sanctioned by the president and secretary of the Granite State Dairymen's Association, the secretary of the State Board of Agriculture, and the director of the Experiment Station. The same persons agreed upon the following committee to conduct the work: J. L. Gerrish, secretary Dairymen's Association, George S. Philbrick, member of the State Board of Agriculture, and D. S. Bridgman, of Hanover. The Experiment Station was to furnish apparatus, provide milk, and, so far as possible, render assistance in way of manual labor, etc. The chemical work was to be done at the station laboratory.

RULES FOR TESTS OF DAIRY APPARATUS.

At the Farmers' Institute, to be held by the New Hampshire Board of Agriculture, Granite State Dairymen's Association, and New Hampshire Agricultural Experiment Station, at Hanover, N. H., January 8, 9, and 10, 1889, the following tests will be made:

1. Comparative test of Moseley & Stoddard, Cooley, Johnson top can separator, and the DeLaval hand-power separator; also any other apparatus, manufacturers of which may express a desire to enter in this test before January 1.

2. A test of churns, including Stoddard, Davis, and Blanchard, and any other which manufacturers may request to have tested; this request to be made before January 1.

RULES.

1. One representative of each system will be allowed to witness all operations, to see that each variety of apparatus is handled as it should be. The

actual work, however, will be performed by men selected by the director of the station, the secretary of the Board of Agriculture, and the secretary of the Dairymen's Association.

2. Seventy-five pounds of milk will be used by each system Tuesday morning, January 8, and seventy-five pounds by each system Tuesday night; each test will, therefore, consist of one hundred and fifty pounds of milk.

3. The cans used by each competing manufacturer shall be their usual cans used in the common way; the hand-power separator shall be the DeLaval vertical, run at not less than forty nor more than forty-six turns a minute.

4. The temperature of the milk, which shall be of the milking corresponding with the time of setting or separating, may be anywhere from 70° to 90° , as each system may desire.

5. All milk will be set twenty-four hours in water at any temperature desired, from 40° up, and the skimming will be by the surface skimmer of the Moseley & Stoddard and the bottom skimming device of the Cooley, and all others, in like manner, by their common advertised method. The milk will be run through the hand separator as soon as the whole milk is divided into three parts, a sufficient quantity of the skimmed milk being poured back and run again to displace the cream in the bowl.

6. The "separated" cream will be held in ice-water until Wednesday night, as will the first skimming from the deep setting. Wednesday night, when the last skimming is done, all the cream from each system will be warmed to 85° and will stand in the same rooms at a temperature as near 65° as possible; it will be regularly and equally stirred at such times as may be agreed upon until it is time to put it in the churn.

7. Churning will commence as near 8 A. M., Thursday, the 10th, as possible, and as each lot will be churned in the same churn, lots will be drawn to determine the order of churning. The temperature of the cream will be such as each representative of the respective systems shall decide upon, within 58° to 68° , and the churning shall proceed at such rate of speed as is desired by each; the buttermilk shall be removed by washing, as far as possible, and the butter, after being washed in the churn, shall hang in a cheese-cloth bag twenty minutes; it shall then be weighed, and for each pound one ounce of salt shall be added; it shall then be worked by some experienced butter-maker on a Skinner worker; said butter-maker shall not know the identity of the samples and shall work them as uniformly as he can. The salted butter shall then be weighed and samples be taken for analysis. Samples of milk, skimmed milk, and buttermilk shall also be taken and analyzed.

8. The final award of merit shall rest upon the basis of the per cent of actual fat (as determined by analysis of the milk and the weight of the milk) that is recovered in the butter (also determined by analysis of the butter). To make this clear, I will give an example. Suppose the milk to contain 4 per cent of fat, $150 \text{ pounds} \times .04 = 6 \text{ pounds actual fat}$. Suppose this to make $6\frac{1}{4}$ pounds of butter containing 80 per cent of fat, $6.25 \times .80 = 5 \text{ pounds of}$

fat in butter; that is, out of six pounds of fat in the milk five have been recovered in the butter, or $83\frac{1}{3}$ per cent of the total fat of the milk is found in the butter; this represents the efficiency of the system used. The quality of the butter from each system will also be determined by an expert.

The committee conducted the tests without mishap in any part of the work. The Johnson top can separator, a new device for raising cream by cold deep setting, was not in working shape, as only half the necessary number of cans were brought, and consequently one setting stood but nine hours and the other but thirteen and a half; this renders it impossible to compare the results of this system with the others. I have given the figures, however.

The work of mixing and dividing the milk was done with the greatest of care; the order of taking out the night's setting being the reverse of the morning's, so that all danger of getting richer milk at the top might be avoided, since the system that took the top milk in the morning took the bottom milk at night.

The centrifugal separator used was run by hand power, and of course did not skim as thoroughly as the larger machines that run by steam power.

Table I. gives the following details of the work: The amount of milk, the temperature at which it was when set, the temperature of the water in which it was set, the time that elapsed before skimming, the spaces of cream and the weight of the same, the time required for churning, temperature of cream when churned, the amount of skimmed milk and the fat in it as shown by analysis, the amount of buttermilk (this was determined by subtracting from the weight of cream the weight of the drained butter; this is the most accurate method, for it is impossible to draw off all the buttermilk and weigh it, as a portion will be left in the butter and must be worked or washed out), the per cent of fat in the buttermilk, the per cent of water, fat, and caseine in the butter, the amount of butter, its quality as determined by experts who knew nothing of the identity of the samples, the efficiency of the systems, and the pounds of milk required per pound of butter.

TABLE I.

	MILK.						CREAM.				SKIMMED MILK.		BUTTER-MILK.		BUTTER.										
	Amount set.	deg.	deg.	deg.	hours.	Time milk set.	Temperature of water at time of setting.	Temperature when skimmed.	Spaces.	lbs.	min.	deg.	Amount.	Per cent of fat in.	lbs.	Amount.	Per cent of fat in.	lbs.	Amount.	Per cent of fat in.	Per cent of caseine in.	Per cent of water in.	Quality, 100 being perfect.	Efficiency of system.	Milk required per pound of butter.
Moseley & Stoddard 1	lbs.	75	90	40	32	24	26	34	31	62½	57	0.34	27¾	2.17	6	1½	80.89	14.07	89	82.11	24.8				
	A. M.	P. M.																							
Cooley.....2	lbs.	75	90	40	32	23½	21½	33¼	28	65	58¼	0.32	26½	3.29	5	14	81.25	15.01	85	80.36	25.5				
	A. M.	P. M.																							
Johnson top can ...3	lbs.	48	90	40	32	9	.....	21	17	65	36	0.58	17	5.53	3	5½	78.00	16.40	86	....	....		
	A. M.	P. M.																							
Shallow six-quart pans .....4	lbs.	143¾	90	55	55	29¾	.....	26¾	33	60	115¼	0.32	20	1.07	6	4	82.32	12.58	95	71.07	23.0				
	A. M.	P. M.																							
DeLaval hand separator.....5	lbs.	75	87	.....	.....	*17	.....	17½	22	61	65¾	0.39	11	.....	.....	.....	79.14	14.02	86	91.10	22.0				
	A. M.	P. M.																							

* Time of separating, in minutes.

The committee of experts who examined the butter consisted of C. H. Waterhouse, president of the New England Creamery Association, and H. W. Sadd, of Connecticut. The butter was marked in the following scale for perfect butter: Flavor, 50; grain, 25; color, 15; salt, 10. Table II. gives the full marking of each sample.

	Flavor.	Grain.	Color.	Salt.	Total.
Perfect butter would mark.....	50	25	15	10	100
Moseley & Stoddard.....	40	25	14	10	89
Cooley.....	43	20	12	10	85
Johnson top can.....	50	18	8	10	86
Shallow six-quart pan.....	45	25	15	10	95
DeLaval hand separator.....	41	25	10	10	86

The efficiency of the various systems is based upon the per cent of the total fat in the milk which is found in the butter (see rule 8 of "Rules of Test"); this was taken because it is the only true test. If one system gives a cream which churns less thoroughly than the cream given by another system, it is just as much to the discredit of the former system as though the fat was left in the skimmed milk; consequently, if we are to arrive at a knowledge of the value of any given system we must follow the original fat in the milk through to the lump of butter and find the per cent of this fat that is recovered. Of the fat not recovered in the butter, the greater the part of it that is left in the skimmed milk and the less the part left in the buttermilk the better, because of the fact that skimmed milk is in better shape to feed to calves than buttermilk. First, get as large a per cent of the total fat as possible into the butter; second, of the portion not recovered get as little as possible into the buttermilk.

The milk used in these tests was sampled and analyzed. Morning's milk had 3.93 per cent of fat, night's milk, 3.99 per cent. The following table shows the amount of fat in the milk, the amount lost in the skimmed milk and buttermilk, and the amount recovered in the butter:

	Moseley & Stoddard.	Cooley.	Open pans.	Separator
	lbs.	lbs.	lbs.	lbs.
Total fat in milk.....	5.9400	5.9400	5.6500	5.9400
Lost in skimmed milk.....	.3246	.3094	.3976	.4315
Lost in buttermilk.....	.6020	.8718	.2140	.1089
Recovered in butter.....	4.8776	4.7734	5.1450	5.4118
	per cent.	per cent.	per cent.	per cent.
Per cent of total fat lost in skimmed milk.....	5.47	5.21	7.03	7.26
Per cent of total fat lost in buttermilk.....	10.13	14.67	3.78	1.83
Per cent of total fat recovered in butter.....	82.11	80.36	91.07	91.10

If perfect work could be done, and if there were such a thing as absolute accuracy, the sum of the fat in butter, skimmed milk, and buttermilk would equal the total fat in the milk used, but there are small errors in weighing, and in chemical analysis and sampling, which are unavoidable. Every chemist recognizes certain limits of error in his work; every investigator realizes that weighings made with standard scales are imperfect; as a result we find just what would be expected, namely, that the sum of the fat in butter, skimmed milk, and buttermilk in each system does not correspond exactly with the fat in the milk; but if we take the four lots, it appears that we had in the milk used, 23.47 pounds of fat, and there is accounted for, 23.46 pounds, an error of less than one sixth of an ounce; hence we may reasonably conclude that these errors, as a whole, balance.

The figures are so plain that comment is unnecessary, and so far as one test conducted by competent and careful men can be relied upon we may place the separator first, the open pans second, the Moseley & Stoddard third, and the Cooley last, in point of efficiency.

HOW THE CREAM WAS RIPENED.

The separated cream was at once placed in water and surrounded with ice, the temperature being kept at about 34°; the first skimmings of the milk that was set were also kept in ice-water, and at this temperature no appreciable amount of "ripening" could have taken place. The shallow pans were not skimmed until 4 P. M., Wednesday, the temperature of the room varying from 47° to 55°.

At 6.36 P. M., Wednesday, all the cream was removed from the ice-water and warmed up to 85° and set in a room the temperature of which was 63° , and here it remained until 10.30 A. M., Thursday; it had, therefore, sixteen hours in which to ripen. It is a well-known fact that cream at 85° ripens much faster than cream at 60° ; hence the time allowed for ripening was not uncommonly short, but, on the contrary, was well up to that allowed in most creameries. While there is no absolute standard by which degrees of "ripeness" may be determined, I have no doubt that the cream used in these tests was as well ripened in sixteen hours after being warmed to 85° as it would have been in twenty-four hours at 61° . This was carefully considered when Rule 6 was framed, for it was known that twenty-four hours could not be allowed; consequently the higher temperature was introduced to compensate for the lack of time. The circumstances were such that two and one half hour's additional time was given more than Rule 7 calls for; it is only fair to suppose, therefore, that the cream was of average ripeness.

Lots were drawn to determine the order of churning; the shallow pans were first, Stoddard second, separator third, Cooley fourth, Johnson fifth. Two Stoddard churns were secured, so that with the shallow pans and the Stoddard cream, churning commenced at 10.48 A. M., Thursday, with the separator and Cooley at 12.3 P. M., and with the Johnson at 1.16 P. M.

TEST OF CHURNS.

There being a lack of time in which to make the churning tests, it was decided to have these carried on by the station employés, and the representatives of the Moseley & Stoddard and Blanchard churns consented to leave their goods for the work.

Mr. A. H. Wood, superintendent of dairy work, has carried out the following experiments, the chemical work being done by Mr. E. H. Farrington.

The cream for each test was kept in one vat and ripened and then divided into three lots. The cream for the first trial was held thirty hours and was sweet; the second trial was the same; but the third was warmed up to 70° and allowed to stand until it gradually fell to 55° , when it was again warmed and in all stood thirty hours; it was slightly acid.

TABLE II.

	Amount of cream.	Time of churning.	Temperature of cream.	Amount salted butter.	Amount of buttermilk.	Per cent of fat in buttermilk.	Per cent of fat in butter.	Total fat in butter.	Total fat in buttermilk.	Speed of churn per minute.
	lbs.	min.	deg.	lbs.	lbs.			lbs.	lbs.	
Davis :										
First trial.....	42.00	19.50	62.00	13.00	27.00	2.14	85.16	12.61	.38	45
Second trial.....	47.40	28.50	61.00	14.81	31.00	1.19	85.16	12.61	.38	45
Third trial.....	39.00	24.50	62.50	12.00	26.50	2.02	82.84	9.94	.53	45
Blanchard :										
First trial.....	42.00	44.00	62.00	13.34	27.00	2.61	82.70	10.00	.51	60
Second trial.....	47.40	53.50	61.00	15.69	31.00	1.26	79.07	12.41	.40	65
Third trial.....	39.00	43.50	62.50	12.09	26.50	1.94	82.70	10.00	.51	65
Stoddard :										
First trial.....	42.00	24.00	62.00	12.75	27.00	2.30	83.46	12.60	.40	60
Second trial.....	47.40	32.50	61.00	15.09	31.00	1.24	83.46	12.60	.40	65
Third trial.....	39.00	30.50	62.50	12.69	26.50	1.82	79.43	10.08	.48	65

The table given above shows the details of each trial for each churn.

The butter from the first trial was not analyzed, but the buttermilk was, and as the thoroughness of churning is shown by the per cent of fat left in the buttermilk, the work is not injured by the absence of the butter analysis in this case.

The following table gives the per cent of fat in the buttermilk from each churn for each trial, and also the average of the three trials :

ANALYSIS OF BUTTERMILK.

	First trial.	Second trial.	Third trial.	Average.
Davis.....	2.14	1.19	2.02	1.78
Blanchard.....	2.61	1.26	1.94	1.93
Stoddard.....	2.30	1.24	1.82	1.78

In the three trials 128.4 lbs. of cream were used by each system, with the following results : Davis swing made 39.81 lbs. of salted butter ; Blanchard, 41.12 lbs. ; Stoddard, 40.53 lbs.

Taking the last two trials, where analyses of both butter and buttermilk were made, we found that from 86.9 lbs. of cream the Davis made 26.81 lbs. of salted butter ; Blanchard, 27.78 lbs.; Stoddard, 27.78 lbs. From the analyses of the butter, we find that each of the foregoing amounts of butter had of actual butter fat the following : Davis, 22.55 lbs. of fat, lost in buttermilk .91 lbs. ; Blanchard, 22.41 lbs. of fat, lost in buttermilk .91 lbs.; Stoddard, 22.68 lbs. of fat, lost in buttermilk .88 lbs. The total fat in both butter and buttermilk being : Davis, 23.46 lbs., 96.1 per cent of this was in the butter ; Blanchard, 23.32 lbs., 96.1 per cent of this was in the butter ; Stoddard, 23.56 lbs., 96.2 per cent of this was in the butter.

These results show that there is practically no difference in the efficiency of these three churns, and if there is any preference it must come from convenience in handling and ease of operation ; on this point there is no doubt in the minds of those who have actually operated the churns here at the station ; for ease of handling and cleaning and for perfection of granulation of butter the Stoddard churn stands at the head. The Blanchard is open to the objection that it has inside floats, which interfere seriously with the granulation of the butter. The Davis is harder to operate than either of the others, and is more difficult to clean when the churning is done. The average time of churning was twenty-four minutes for the Davis, forty-seven minutes for the Blanchard, and twenty-nine minutes for the Stoddard. The Davis leads in point of time required.

BUTTER EXHIBIT.

The following letter was sent to each creamery in the State, so far as the address was known :

“ A three days' Farmers' Institute is to be held here January 8, 9, and 10. The third day will be under the control of the Granite State Dairymen's Association, and we are very anxious to have a good exhibit of butter and cheese and want you to favor us with a five-pound box of your butter.

“ This butter will all be tested by an expert butter-tester and will be sampled, and the samples analyzed free of expense at the

Experiment Station laboratory. This will give very valuable information to all butter-makers, and it is especially desirable that we get samples of all the creamery butter in the State.

"Yours truly,

"G. W. WHITCHER."

Private dairymen were also invited to send samples.

As a result, fourteen creameries sent twenty-two samples, and eleven private dairies sent twenty-four samples. The following is the full list of butter that was examined by Mr. H. K. Slayton, of Manchester; the first, second, and third awards in each class being indicated:

CREAMERY.

NAME.	Location.	System used.	Station No.
West Lebanon.....	West Lebanon.....	Separator.....	A-109*
West Lebanon.....	West Lebanon.....	Separator.....	A-110
West Lebanon.....	West Lebanon.....	Separator.....	A-111
C. G. Britton.....	Keene.....	Cooley.....	A-102†
Hanover.....	Hanover.....	Separator.....	A-101‡
L. T. Hazen.....	Whitefield.....	Separator.....	A-105
Lyme.....	Lyme.....	Separator.....	A-100
Oyster River.....	Durham.....	Cooley.....	A-104
Cornish.....	Cornish.....	Separator.....	A-106
Alstead.....	Alstead.....	Cooley.....	A-107
Cold Brook.....	Franklin.....	Cooley.....	A-103
Cold Brook.....	Franklin.....	Cooley.....	A-118
Piermont.....	Piermont.....	Separator.....	A-108
Short Falls.....	Epsom.....	Separator.....	A-112
Center Strafford.....	Strafford.....	Separator.....	A-113
Center Strafford.....	Strafford.....	Separator.....	A-114
Center Strafford.....	Strafford.....	Separator.....	A-115
Center Strafford.....	Strafford.....	Separator.....	A-116
Center Strafford.....	Strafford.....	Separator.....	A-117
E. M. Smith.....	Peterborough.....	Cooley.....	A-119
E. M. Smith.....	Peterborough.....	Cooley.....	A-120
Grantham.....	Grantham.....	Cooley.....	A-121

* First award. † Second award. ‡ Third award.

PRIVATE DAIRY.

NAME.	Location.	System used.	Station No.
J. F. Johnson.....	Norwich, Vt.....	Cooley.....	B-100
J. F. Johnson.	Norwich, Vt.....	Cooley.....	B-101
E. A. Perley.....	Lebanon.....	Cooley.....	B-102
L. T. Hazen.....	Whitefield.....	Separator.....	B-103†
J. L. Gerrish.....	Webster.....	Milk set in tin sap pails.....	B-104
W. D. Baker.....	Quincy.....	Lincoln channel cans.....	B-115
W. D. Baker.....	Quincy.....	Lincoln channel cans.....	B-116*
W. D. Baker.....	Quincy.....	Lincoln channel cans.....	B-117
W. D. Baker.....	Quincy.....	Lincoln channel cans.....	B-117
W. D. Baker.....	Quincy.....	Lincoln channel cans.....	B-118
Experiment Station.....	Hanover.....	Separator.....	B-105‡
Experiment Station.....	Hanover.....	Separator.....	B-106
Experiment Station.....	Hanover.....	Separator.....	B-107
Experiment Station.....	Hanover.....	Separator.....	B-108
Experiment Station.....	Hanover.....	Separator.....	B-109
Experiment Station.....	Hanover.....	Separator.....	B-110
Experiment Station.....	Hanover.....	Separator.....	B-111
Experiment Station.....	Hanover.....	Separator.....	B-112
Mr. Fairbanks.....	Hanover.....	Ferguson.....	B-113
Mr. Fairbanks.....	Hanover.....	Ferguson.....	B-114
C. W. Emery.....	Canterbury.....	Wooster's creamer.....	B-119
C. W. Emery.....	Canterbury.....	Wooster's creamer.....	B-120
F. Little.....	Peterborough.....	(?).....	B-121
A. O. Smith.....	Peterborough.....	(?).....	B-122

* First award.

† Second award.

‡ Third award.

The following is the description of the method used in making the butters that were awarded first, second, and third places in each class :

CREAMERY.

First Award. West Lebanon Creamery, Co-operative. Milk gathering, mixed milk from Jersey and native cows, run through DeLaval separator, cream ripened twenty hours as near 62 degrees as possible, churned in Blanchard box churn at 64 degrees, butter washed in granular form with water at 55 degrees, Higgins salt, Wells, Richardson & Co.'s butter color, Blanchard butter-worker used.

This sample was taken from a lot of 450 pounds churned at one time.

(Signed)

J. H. BICKFORD, *Butter-maker.*

Second Award. C. G. Britton's Proprietary Creamery. Milk from mixed breeds set in Cooley creamer, cream ripened eighteen hours at 66 degrees, and churned at 65 degrees in Davis churn,

washed when in granular form in water at about 50 degrees, lever worker, Genesee salt, and Fletcher's butter color used.

(Signed)

C. G. BUTLER, *Keene, N. H.*

Third Award. Hanover Creamery, Co-operative. Milk gathering, milk from mixed breeds, run through DeLaval separator, cream ripened about twenty-four hours at about 60 degrees, churned in Blanchard churn, washed when in granular form in water at 60 degrees, worked with Blanchard worker, salted with Higgins salt, and colored with Hansen's butter color.

(Signed)

HENRY CUMMINGS, *Butter-maker.*

PRIVATE DAIRY.

First Award. W. D. Baker. Milk from Holstein-Jersey cross, set in Lincoln channel can creamer, cream ripened twelve hours at 75 degrees, one quart of buttermilk added to the cream to assist in ripening, churning done in Davis churn, cream at a temperature of 66 degrees, worked in granular form in water at 50 degrees, no color used.

(Signed)

W. D. BAKER.

Second Award. L. T. Hazen. Milk from Jersey cows, run through DeLaval separator, cream ripened thirty-six hours, and churned at 62 degrees in box churn, washed in granular form with water at 50 degrees, Ashton's salt and Hansen's butter color used.

(Signed)

L. T. HAZEN.

Third Award. New Hampshire Experiment Station. Milk from Jersey cows, run through DeLaval hand-power separator, cream ripened twenty-four hours at 65 degrees, churned in Stoddard churn at 62 degrees, washed in granular form in water at 52 degrees, worked on Skinner worker, Higgins salt and Hansen's butter color used.

(Signed) A. H. WOOD, *Supt. Dairy Department.*

Samples were taken from each lot of creamery butter and from part of the private dairy butter. These were analyzed at the station laboratory, the per cent of water, fat, and caseine being de-

terminated ; the salt, etc., is found by difference. The volatile fatty acids are also given. These are determined by a process in which a definite amount of the pure butter fat is converted into soap by a solution of potash, to which alcohol is added ; after this the alcohol is driven off by heat, then water and a solution of phosphoric acid are added and the mixture distilled until a given amount is collected. This distillate contains the volatile acids, and is neutralized with a solution of soda of known strength ; the figures given show the number of parts of this soda solution required to neutralize the acids. This test is much used in detecting adulteration or in distinguishing oleomargarine from pure butter.

Table III. gives the full analysis of each sample. By some error the caseine was not determined in the sample made at the Experiment Station.

TABLE III.

NAME OF EXHIBITOR.	No. of sample.	Per cent water.	Per cent fat.	Volatile acids = c. c. soda solution.	Caseine.	Salt, etc., by difference.
Lyme creamery.....	A100	13.08	81.98	15.3	.756	4.18
Hanover creamery, 3d prize.....	A101	11.24	85.07	15.3	.544	3.15
Keene creamery, 2d prize.....	A102	11.33	84.39	15.2	.700	3.58
Cold Brook creamery, Franklin.....	A103	7.60	88.49	14.8	.576	3.33
Oyster River creamery, Durham.....	A104	9.19	85.74	15.5	.781	4.29
Island View creamery, Whitefield.....	A105	14.37	80.32	14.5	.560	4.75
Cornish creamery.....	A106	15.70	79.87	15.5	.960	3.47
Cold River creamery, Alstead.....	A107	8.51	87.86	14.6	.743	2.89
Piermont creamery.....	A108	13.22	81.21	15.8	.697	4.98
West Lebanon creamery, 1st prize.....	A109	12.69	82.15	15.4	.650	4.51
Short Falls creamery.....	A112	14.94	82.45	14.6	.706	1.91
Center Strafford creamery.....	A113	10.00	87.30	14.7	.377	2.32
Cold Brook creamery, print.....	A118	11.90	82.35	15.8	.669	5.18
Pet rborough creamery.....	A110	12.26	83.77	15.3	.631	3.34
Graham creamery.....	A121	9.41	86.26	14.7	.650	3.68
E. A. Parley, dairy, Lebanon.....	B102	12.15	85.40	15.0	.545	1.91
L. T. Hazen, dairy, Whitefield, 2d prize.....	B103	11.86	82.85	16.1	.925	4.37
J. L. Gerrish, dairy, Mast Yard.....	B104	8.08	85.19	15.1	.756	5.98
W. D. Baker, Quincy, 1st prize.....	B116	8.43	81.10	15.8	.669	2.80
N. H. Experiment Station, Hanover, 3d prize	B105	10.12	85.32	15.5	(?)	(?)
Averages.....		11.30	84.30	15.2	.678	3.66

The averages in the above table must closely correspond with the average of the best butter made in the State. For the sake of

comparison I have collected data which give the general average composition of many samples of butter: Water, 12.48; fat, 84.77; caseine, .73; salt, etc., 2.02; volatile acids = 14 c. c. standard soda solution.

The butter exhibited shows a large per cent of salt, but this is demanded by the customers, as a general thing. The caseine is low but there is possibility of improvement here. We should try to produce butter in our creameries with not over five tenths of one per cent of caseine; the per cent of water, too, should be reduced, and the fat correspondingly increased. If I were to give a standard for creameries or private dairymen to work toward, it would be as follows: Water, 10 per cent; fat, 86 per cent; caseine, .5; salt, 3.5. Fancy butter as a rule runs high in the per cent of fat, high in volatile acids, low in water and caseine.

In conclusion, I would especially call the attention of the dairy farmer to the importance of these and similar tests as a means of improving the methods of manufacture, and the quality of the product. Dairying is fast becoming the mainstay of New Hampshire agriculture, and there is need of following every improvement, and to my mind there is no way in which the Experiment Station can render greater aid than by conducting careful tests, and reporting results.

G. H. WHITCHER, *Director*,
J. L. GERRISH, *Secretary*,
Granite State Dairymen's Association.

NEW HAMPSHIRE

AGRICULTURAL EXPERIMENT STATION.

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C. H. Pettee	<i>Meteorologist.</i>
J. M. Fuller	<i>Station Farmer.</i>
H. L. Barnard	<i>Clerk.</i>

The New Hampshire Agricultural Experiment Station, the organization of which was given in the previous report, has become firmly established and is doing important work for the agricultural interests.

The laying of the corner-stone of the Experiment Station building, at Hanover, on June 26, 1888, was an important occasion. The day opened with the graduating exercises of the College of Agriculture at the old College church, when the nine students of the graduating class received their degrees at the hands of the

venerable president of the board of trustees, Hon. George W. Nesmith, of Franklin. Prominent upon the platform were Gov. Charles H. Sawyer, of Dover, Hon. Lyman D. Stevens, of Concord, and Hon. Joseph Kidder, of Manchester, of the board of trustees; Hon. Warren Brown, of Hampton Falls, president of the New Hampshire Agricultural Society; Hon. Frank D. Currier, of Canaan, president of the Senate; Attorney-General Daniel Barnard, of Franklin; Hon. J. W. Patterson, superintendent of public instruction; Hon. Thomas Cogswell, of Gilmanton; Hon. Joseph B. Walker, of Concord; Professors C. H. Pettee and G. H. Whitcher, of the Agricultural College; and of the Board of Agriculture, the president, Hon. Moses Humphrey, of Concord; Charles McDaniel, of Springfield; S. B. Whittemore, of Colebrook; Lucien Thompson, of Durham; and Hon. J. D. Lyman, of Exeter. Music was furnished by Reeves' Orchestra, of Providence, and papers of more than ordinary merit were read by members of the class as follows: "The Age of Aluminium," by Melvin Burnside Carr, of Haverhill; Ericsson's Inventions," by William Nelson Hazen, of Hartford, Vt.; "The Croton Aqueduct," by George Jonathan Sargent, of Canterbury; "Work of the Mechanical Engineer," by John Warren Smith, of Grafton.

As the degrees were being conferred, the visitors by special train came flocking into the church, and as it was raining, it was decided to change the program to the extent of attending to the speech-making, relative to the laying of the corner-stone, within doors. Hon. L. D. Stevens presided during this feature of the exercises, and after music by the band, introduced Hon. George W. Nesmith, who briefly addressed the graduating class, and was followed in order, in brief but thoroughly entertaining speeches of five minutes each, by Governor Sawyer, Hon. Moses Humphrey, Hon. Warren Brown, Hon. Frank D. Currier, Attorney-General Barnard, Hon. Joseph B. Walker, Hon. Thomas Cogswell, Hon. John D. Lyman, and Hon. J. W. Patterson. At the conclusion of the addresses, which were in the main in behalf of the Agricultural College, and were heartily responded to by the large audience, a procession, headed by the band, was formed under the marshalship of E. H. Wason, of Nashua, a former

graduate, and marched to the site of the Experiment Station, where the formal exercises of laying the corner-stone were carried out in an impressive manner by the officers of the State Grange, who were present as follows: State master, Charles McDaniel, of Springfield; overseer, Charles N. Clough, of Canterbury; lecturer, John D. Lyman, of Exeter; steward, Frank H. Weld, of Cornish; assistant steward, James E. Shepard, of New London; treasurer, J. M. Taylor, of Sanbornton; secretary, N. J. Bachelder, of Andover; gate-keeper, Henry Moore, of Goffstown; Pomona, Miss Addie E. Rice, of Henniker; Ceres, Mrs. Charles McDaniel, of Springfield; executive committee, W. W. Burbank, of Webster, R. D. Gay, of Manchester, J. W. Farr, of Littleton; general deputy, E. C. Hutchinson, of Milford. Other prominent Patrons of Husbandry present were Hon. G. A. Wason, of Nashua, past state master, and wife; C. C. Shaw, of Milford, formerly of the executive committee; and F. P. Wentworth, of Rochester, master of Eastern New Hampshire Pomona Grange; Warren Tripp, past master of McClary Grange, Epsom; and the following masters of Granges: A. B. Page, of Manchester, C. W. Emery and wife, of Canterbury, G. A. Bean, of Merrimack, H. A. Hill and wife, of Derry, J. F. Gove and wife, of Bedford, C. H. Pettee and wife, of Hanover, F. B. Palmer, of Lyme, F. G. Richardson, of West Canaan, C. O. Barney, of Canaan, J. M. Hayes, of Dover, E. B. Merrill and wife, of Andover, L. C. Putney, of Webster, Albert Saltmarsh, of Concord, John Freeman, of Lebanon.

President Nesmith, on behalf of the board of trustees, gave over the charge of the ceremonies to State Master McDaniel, who spoke as follows:

“In the name of the State Grange of New Hampshire, Patrons of Husbandry, and at the request of the New Hampshire College of Agriculture and Mechanic Arts, we hereby assist in formally laying the corner-stone upon which is to be rested the New Hampshire Experiment Station of Agriculture. Agriculture is a science and art equally useful and extensive. In every art there is a mystery, and especially in nature, which requires a gradual progression of knowledge to arrive at any degree of perfection in it. Without much instruction and more exercise no

man can be skillful in any art ; in like manner, without an assiduous application to the various subjects connected with agriculture, no person can be sufficiently acquainted with its true value. It must not be inferred from this remark, that persons who labor under the disadvantage of a limited or confined education, or whose sphere of life requires a more intense application to business, are to be discouraged in their endeavors to gain a knowledge of agriculture. To qualify an individual to enjoy the benefits of this art, or to partake of its privileges, it is not absolutely necessary that he should be acquainted with all its intricate parts. These are only intended for the diligent and assiduous student, who may have leisure and opportunity to devote time and study in such direction. Though some are more able than others, some more eminent, some more useful, yet all in their different spheres may prove advantageous to the agricultural community.

“ In all regular assemblies that are convened for wise and useful purposes, the commencement and conclusion of business are accompanied by some form. In every country in the world the practice prevails and is deemed essential. From the most remote periods of antiquity it may be traced, and the refined improvements of modern times have not totally abolished it. Ceremonies, when simply considered, it is true, are little more than visionary delusions, but their effects are sometimes important. When they impress reverence on the mind and engage the attention by external attraction to solemn rites, they are interesting. On this ground they have received the sanction of the wisest and best men in all ages, and consequently could not escape the notice of agriculturists or Patrons of Husbandry, — the Grange. To begin well is the most likely means to end well, and it is judiciously remarked, that when an institution or enterprise is neglected in the beginning, it will be seldom found to take place at the end. May the all-bounteous Author of Nature bless the inhabitants of this State with all the necessary comforts and conveniences of life, assist in the erection of this building, and, if it be His will, protect the workmen against every accident, and protect this structure from decay, and grant to us all in needed supply the knowledge of agriculture, the water of purity, the wheat that nourisheth, and the flowers of good works. Amen, so be it.”

Prayer was offered by Hon. Joseph Kidder, acting as chaplain, and the secretary, N. J. Bachelder, then deposited a box beneath the corner-stone with the following remarks:

"By command of the worthy master, and in the interest of agriculture, I proclaim this corner-stone laid for the advancement of the science. We here deposit copies of the Hatch bill, Constitution and By-laws of the Patrons of Husbandry, last annual report of the Agricultural College for 1888, Bulletin No. 1, issued by the Experiment Station, the announcement of the exercises, the program of the day, copies of the last issue of the "Dartmouth," the Hanover "Gazette," "The Manchester Weekly Union," "Mirror and Farmer," the "Independent Statesman," and the weekly "People and Patriot," of Concord, roster of New Hampshire Granges for 1888, dedication ceremony, and the ode sung here to-day. As these indicate the work of our agricultural organizations, so may the record made by the institution in whose interest this corner-stone is laid prove to be the guiding star of the State to still brighter and grander achievements."

The stone was then lowered to its place, and President Nesmith, in appropriate remarks, declared the corner-stone of the Experiment Station formally laid. The exercises that followed were peculiar to the Grange, and were impressively carried out for the first time in New Hampshire. The lecturer, J. D. Lyman, advancing with a lighted torch, said: "By command of the worthy master, and in the name of education as broad as the human family, I proclaim this corner-stone laid in faith. As the torch in the hands of the pioneer into secret vaults and hidden passages dissipates the darkness and uncertainty, so may science, faithfully applied in the building here to be erected, send forth its beams of light and knowledge until our sons and daughters shall stand in the high places of education and gather the rewards due to intelligent labor and honest toil."

The treasurer, Hon. J. M. Taylor, sprinkling water upon the stone, said: "By command of the worthy master, and in the name of hope, as pure, refreshing, and indispensable as water, I proclaim the corner-stone of this structure laid in the interest of agricultural science and all the agencies that will assist in the

development of the material riches of the State and the mental forces of the rising generation. May our young men and maidens, enriched by study and adorned by the generous culture of their minds, become a blessing to themselves and the age in which they live."

Ceres, Mrs. Charles McDaniel, casting grains of wheat upon the stone, advanced saying: "In the name of charity, as widely diffused as the needs of a common humanity, and beautifully symbolized in this grain as bread for the perishing, I proclaim this corner-stone laid as the foundation of that knowledge which at no distant day will 'cover the earth as the waters cover the great deep,' and lead men to the cultivation of the spirit of brotherly love in its highest, broadest, and best sense. 'The greatest of these is charity.'"

Ceres, in turn, was followed by Flora, Mrs. W. D. Tuttle, of East Andover, saying: "In the name of that fidelity to principle and to everything good and true in man as the child of God and the heir of immortality, I proclaim the corner-stone of this edifice laid in the love of our offspring, and may those who gather in these halls of learning from time to time be so endued with every grace and virtue that, like these flowers, beautiful to the eye and filling the air with a common fragrance, they may send forth a sweet moral and spiritual influence into the homes and hearts of all our people. Then with faith in God, hope in the future, charity for all, and fidelity in every relation in life, we may peacefully lie down to pleasant dreams, and fear no evil."

The following ode, composed by Mrs. H. A. Hill, of Derry, was sung by a choir composed of Albert Saltmarsh, of Concord; A. A. Platts, of Merrimack; Mrs. Charles McDaniel, of Springfield; Mrs. G. A. Wason, of Nashua; and Mrs. D. W. Morrill, of Canterbury; tune, "America":

What joy it is to come
From farm and happy home,
To classic shades!
To feel, for sons of ours
Are summoned all these powers,
Will glorify these hours
Till memory fades.

This building soon to rise,
Begun 'neath June's fair skies,
Means much to all;
No theories sent forth,
Till test has proved their worth ;
Many shall here find birth
To lighten toil.

Could one with seer-like powers,
Forecast for coming hours
Good to our land,
We'd see o'er hill and plain
The toil our farms sustain,
And how the well-worked brain
Helps working hand.

Oh, blessings on our State
And on our country great,
That have at length
Made ways of duty bright
With learning's power of light,
Which gives the farmer might,
Our nation strength.

The exercises closed with benediction by the chaplain, after which the officers of the State Grange, masters of subordinate Granges, and invited guests repaired to the gymnasium, where an excellent dinner was served by the ladies of Grafton Star Grange to a company of at least two hundred. Brief post-prandial speeches were made by ex-Governor Frederick Smyth and Hon. Joseph Kidder, of Manchester, and the remainder of the day was spent in an inspection of the farm and college buildings, and rambles about the pleasant grounds of old Dartmouth. Among the prominent citizens present, and not mentioned elsewhere, were ex-Gov. Benjamin F. Prescott, of Epping ; Hon. Lewis W. Clark and Josiah Carpenter, of Manchester ; and Charles H. Carpenter, of Chichester ; while the press of the State was represented by E. N. Pearson, of the Concord "Monitor" ; Allen N. Robinson, of the "People and Patriot" ; and E. J. Burnham, of the Manchester "Union."

Six bulletins have been issued by the station during the year, one of which appears in the report of the Dairymen's Association. We herewith present to our readers the remaining bulletins in the order in which they have been issued.

FEEDING EXPERIMENTS.

The prime object in planning the feeding experiments recorded in this bulletin was to determine as far as possible the actual feeding value of the ensilage produced from the different varieties of corn described in Bulletin No. 1, and incidentally to note the cost of a quart of milk or a pound of butter with the various rations used.

The animals experimented on were a mixed herd of young and mature cows in various stages of lactation, from fresh in milk to six months after parturition. Half of the herd had been bought from farmers and were native cows, there were four heifers with their first calves, and the remainder were thoroughbred Shorthorns. Taking all together, they were a fair lot of cows, weighing at beginning of experiment an average of $948\frac{1}{2}$ pounds.

The kinds of fodder and grain used were corn fodder or stover, bean vines, mixed hay containing a large proportion of alsike and red clover, millet cut when seed was fully formed, mixed grain consisting of ninety pounds of Northern corn, ground together with the cob, and twenty-five pounds of oats, gluten meal from the Chicago Glucose Works, buckwheat ground with hulls not separated, and clear corn meal ground from Northern corn.

Lack of means and help prevented the analysis of part of the materials used, but the best average results of analyses of other years were taken as a guide to the composition of the rations used. The ensilage was analyzed, giving the following results, as taken from Bulletin No. 1 :

	Water.	Dry substance.	Albuminoids.	Nitrogen-free extract.	Ether extract.	Fiber.	Ash.	Phosphoric acid.*	Potash.*
Southern.....	75.40	24.90	2.36	14.58	.58	5.95	1.13	.0269	.0917
Northern Field.....	72.40	27.60	2.65	17.17	1.30	4.79	1.69	.....	.....
Sanford	77.20	22.80	2.11	13.85	1.08	4.81	.93	.....	.....
Pride of the North.....	70.45	29.55	3.25	16.90	1.59	6.04	1.77	.0888	.0342
<i>Samples taken :</i>									
Dec. 7, from silo, Sanford....	69.76	30.24	3.09	18.82	1.65	5.32	1.36	.0556	.1171
Dec. 15, from silo, Southern....	78.80	21.20	2.04	10.54	1.37	5.89	1.33	.0484	.1093
1886, Northern Field Corn....	70.55	29.45	2.65	18.84	.90	6.00	1.05	.....	.....

* Contained in ash.

The Northern field corn ensilage was not analyzed after it was put in the silo, but from the analyses of last year I have placed in the table figures that will not vary much from the true analysis. The cost per ton as harvested was as follows: Southern corn, \$2.21, shrinkage in silo, 16.5 per cent; Sanford, \$2.48, shrinkage in silo, 5.5 per cent; Northern field, \$2.40, shrinkage in silo, 23 per cent. The shrinkage of the Northern field corn is excessive, partly due to freezing to side of silo, and partly to a defective bottom of material left over from last year's filling; as nearly as could be estimated these accidental losses would reduce the actual shrinkage to 20 per cent. The actual cost then per ton as fed out would be as follows: Southern, \$2.64; Sanford, \$2.62; Northern, \$3. The price per ton for grains, as figured from the market price of last winter, was: Corn and oats (mixed grain), \$26; gluten meal, \$26; corn and cob meal, \$20; buckwheat, \$20; corn fodder and bean vines, \$5; mixed hay, \$8; millet, \$5.

I have based the price of hay on the market value here in the barn, choice hay selling for \$9; but this being the first year's crop was of less value on account of the old stubble which it contained. The corn fodder, millet, and bean vines I have rated at \$5, which is slightly more than they would sell for, but is very close to their actual feeding value as compared with hay at the above-mentioned price. With these figures as a basis, we are in position to determine the cost of milk and butter with our own herd and under our own conditions, and also to note how a change of food affects the cost of the product.

The silo was opened in November and the whole herd were accustomed to the ensilage before the experiments were started. December 6, the herd was put on the following rations per head: Sanford ensilage, 50 lbs.; mixed hay (largely clover), 5 lbs.; bean vines, 5 lbs.; mixed grain, $1\frac{1}{4}$ lbs. The ration was the same as had been fed for some time previous, and was continued until the 12th, when the Sanford ensilage was all fed, and the next in order was Southern corn. In each case the corn was cut when the silo was filled.

December 12, the ration was modified by substituting fifty pounds of the Southern in place of the fifty pounds of Sanford ensilage. No other part of the ration was changed, hence any considerable change must be due to a difference in the feeding value of the two kinds of ensilage. After feeding this ration for seven days it was decided to increase the grain ration, and accordingly from the 19th to the 26th four pounds of mixed grain were fed to each animal instead of the one and one fourth pounds previously fed. From the 26th to January 8, this ration was still further enriched by the addition of two pounds of ground buckwheat, and from January 9 to 13 the grain ration consisted of two pounds of clear corn and cob (no oats being mixed with these) and three pounds of gluten meal. At this point the Southern ensilage was used up, and the Northern field corn came next. This was put in whole and was full of well-matured ears which had kept perfectly and were as bright as when put in.

The milk of ten of the cows was weighed and recorded morning and night, as was the total milk for the herd, and in the following table I have arranged the average daily product of each of these ten, as well as the total for the herd, for periods of seven days; in the same table are shown the daily ration per cow and its cost, as well as the amount of milk required to make a pound of butter, and also the cost of a quart of milk and a pound of butter. I have given the cost per quart of milk for the best cow and for the poorest; also the average cost for the ten cows whose milk was weighed daily, and the average cost of the total product. It must be remembered that this last is affected by the fact that several of the cows had been long in milk, and consequently the cost per quart was higher than would have been the case with

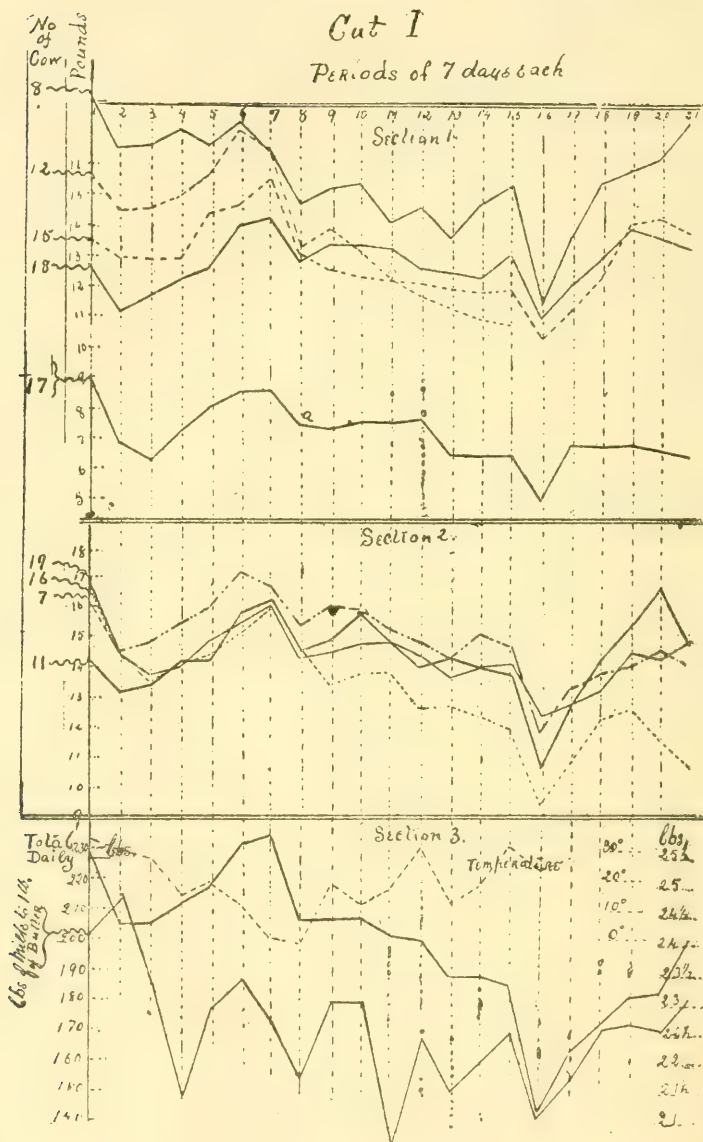
many winter herds, but taken all together the results would represent a very fair yearly average for the entire number. These results may therefore be taken as representative figures for cows under ordinary conditions.

In the cuts given I have represented the results contained in Table A in such a way that it is possible to see at a glance the leading features of the results therein recorded. A word in explanation of Cuts 1 and 2 may be necessary. The first column shows the number of the cow and corresponds with the first column in Table A. The second column shows the scale of pounds, and from this it is possible to determine the average daily product of any cow for any period. The figures from one to twenty-one across the top show the periods and correspond with the top line of figures in Table A. The curved lines running across the cut show the average product of milk for each cow and for the whole herd. The dotted lines running parallel to columns one and two represent the periods and are of use in determining how much milk was given at any definite time. For example, suppose we wish to know how much milk cow No. 17 gave daily during the 8th period. Follow the curved line marked 17 in first column out to the point where it crosses the dotted line representing Period 8; this point I have marked *a*. Now this point is opposite 7.4 in column second, showing that No. 17 during Period 8 averaged 7.4 lbs. of milk daily. Any other yield for any period may be determined in the same way. Taken as a whole, the curved lines by their upward or downward variation indicate respectively an increase or a decrease of daily milk product; hence a general upward variation would indicate that for some reason, most probably a change of food, the cows were giving more milk. A gradual downward tendency might indicate a natural shrinkage as time elapsed, but a sudden downward variation would most probably show a less efficient ration. With these points in mind a study of Cut 1 and Table A may show something of value in feeding for milk.

TABLE A.

Period.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
No. of Cow.	Dec. 6-11, 1887.	Dec. 12-18.	Dec. 19-25.	Dec. 26 to 1888.	Jan. 2-8.	Jan. 9-13.	Jan. 14-22.	Jan. 23-29.	Jan. 30 to Feb. 5.	Feb. 6-12.	Feb. 13-19.	Feb. 20-26.	Feb. 27 to Mar. 4.	Mar. 5-11.	Mar. 12-18.	Mar. 19-25.	Mar. 26 to April 1.	Apr. 2-8.	Apr. 9-15.	Apr. 16-22.	Apr. 23-29.	Apr. 30 to May 6.
2.	13-75	12-30	12-75	12-04	13-20	14-05	14-31	13-21	13-25	13-10	13-00	12-46	12-35	12-06	12-00	10-50	11-31	12-68	13-10	13-85	14-71	21-07
4.	16-21	14-50	14-75	15-36	15-03	17-10	16-61	15-25	14-75	13-80	15-20	14-75	14-20	14-06	14-53	19-21	18-78	19-82	13-60	20-43	21-21	21-07
8.	18-37	16-57	16-61	17-18	16-04	17-45	16-39	14-59	14-75	15-39	14-10	14-60	14-30	14-96	14-53	19-21	18-78	19-82	13-60	20-43	21-21	21-07
11.	14-12	13-11	13-39	14-14	14-18	15-75	16-17	15-39	14-80	15-60	14-75	14-25	13-40	14-06	14-53	19-21	18-78	19-82	13-60	20-43	21-21	21-07
12.	15-75	14-50	14-61	15-07	15-75	17-20	16-50	13-95	13-95	13-20	12-18	11-70	11-30	10-66	10-66	10-66	10-66	10-66	10-66	10-66	10-66	10-66
15.	12-80	12-80	12-86	12-86	14-43	14-75	15-56	13-10	12-50	12-30	12-20	12-10	11-30	10-66	10-66	10-66	10-66	10-66	10-66	10-66	10-66	10-66
16*	14-32	13-53	14-14	14-30	14-33	15-10	15-97	14-50	13-40	13-80	13-82	12-70	12-40	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90
17*	9-04	8-00	6-32	7-21	8-00	8-55	8-58	7-40	7-32	7-53	7-40	7-60	6-40	6-40	6-40	6-40	6-40	6-40	6-40	6-40	6-40	6-40
18*	12-75	11-21	11-71	12-25	12-61	14-05	14-25	12-80	13-40	13-40	13-25	12-40	12-40	12-30	13-00	13-00	12-00	12-00	12-00	12-00	12-00	12-00
19*	16-75	14-36	13-71	14-00	14-82	11-05	15-97	14-32	14-53	14-75	14-82	14-00	14-25	14-00	13-75	10-60	12-60	14-20	15-40	16-60	14-70	14-70
Total milk daily, herd	229-20	204-86	205-57	212-00	217-54	231-45	234-50	266-18	266-53	267-00	261-50	200-00	187-68	186-10	184-32	144-22	163-40	172-00	181-00	182-60	200-70	200-70
To produce one lb. butter.....	23-700	27-450	28-130	28-350	30-000	26-900	19-700	23-700	27-30	24-10	22-30	24-50	24-80	25-80	25-80	23-40	27-60	34-90	20-40	20-40	20-40	20-40
Highest.....	2-600	3-580	5-090	5-050	4-640	4-020	3-120	3-910	3-95	3-84	3-92	3-80	4-53	4-53	4-53	4-73	4-32	5-70	5-00	5-00	5-00	5-00
Lowest.....	1-320	1-470	1-040	2-130	2-230	1-970	1-610	1-880	1-82	1-83	1-91	1-31	1-40	1-38	1-30	1-20	1-54	1-90	1-72	1-72	1-72	1-72
Av. for ten cows.....	1-655	1-804	2-473	2-700	2-687	2-365	1-786	2-236	2-15	2-15	2-21	2-28	2-36	2-34	2-34	2-28	2-60	3-18	2-60	2-60	2-60	2-60
Av. for herd.....	2-020	2-270	2-980	3-270	3-250	2-830	2-170	2-580	2-56	2-57	2-64	2-39	2-54	2-53	2-53	2-79	2-90	3-66	3-25	3-25	3-25	3-25
Average pounds of milk to 1 pound of butter.....	25-25	25-00	24-40	22-50	24-00	24-50	23-80	22-80	24-10	24-13	21-70	23-50	22-60	23-70	23-60	22-10	22-80	23-60	23-70	23-60	24-10	24-10
Southern.....	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Northern.....	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Mixed hay (largely clover).....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Herb grass hay.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Corn fodder.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bean vines.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Dry fodder.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Millet.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Mixed grain.....	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Buckwheat.....	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Gluten.....	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Corn and cob meal.....	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Cost of daily ration per head.....	0-11 1/2	0-11 1/2	0-11 1/2	0-17	0-17 1/2	0-16	0-12 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-10 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2	0-13 1/2

* Heifers with first calves. † Cows were fed all the hay they would eat and weight noted.



Commencing with the first period there is a substantial and very uniform shrinkage, as shown not only by the individual averages (Cut 1, sections 1 and 2) but also by the total yield, section 3. This shrinkage, amounting to from five to twenty per cent, can only be traced to one cause, namely, the substitution of fifty pounds of Southern corn ensilage for fifty pounds of Sanford ensilage. So general and so large a falling off cannot be attributed to accidental causes, and as the nature of the food was the same, there being no radical change, one succulent food being exchanged for another equally succulent, it cannot be said that the digestive organs were in any way overtaxed. Neither was the food less palatable, for it was perfectly preserved and greedily eaten. There is no escape from the conclusion that the Southern corn ensilage was less valuable in the feeding barn, as its analysis shows it to have been in the laboratory. The next step was to increase the grain ration by feeding four pounds of mixed grain instead of one and one fourth pounds. Looking at our curved lines in Cut 1 from Periods 2 to 3 it is found that in four of the individual records a small shrinkage still manifests itself. In five cases there is a small increase in product, while the total milk, section 3, remains almost constant, there being but seven tenths of a pound increase daily in the milk of the entire herd. There is reason for believing that this ration, had it been fed at the commencement of Period 2, would have kept up the flow, or at least would have come very near to it, but from the bottom of Table A it is seen that the ration for the third period cost fifteen cents daily for each cow, while for Period 1 it cost but eleven and one third cents.

During the fourth period a still further addition was made of two pounds of ground buckwheat, increasing the cost of the ration to seventeen cents per head daily. The effect of this was to increase the daily yield of eight of the cows, as shown by the upward direction of the lines in the cut, one, No. 15, remaining stationary, while the total milk increased three and one third per cent.

Period 5 was like 4, except that six pounds of corn fodder were fed in place of five pounds of bean vines, but as the feeding value of the two is nearly identical this variation was prob-

ably without effect. All of the cows except No. 8 increased in quantity during this period, and by the indication of the lines in the cut it appears that the increase was nearly identical with the previous period.

During Period 6 a radical change was made in the grain fed, gluten meal three pounds and corn and cob meal two pounds being used, the ensilage and dry fodder remaining the same. The result was a decided increase, the total yield coming up to and slightly surpassing the yield at the commencement of the work. This closes the work with Southern ensilage, and gives us data for determining the relative economy of the Sanford and Southern varieties of corn. The first period is the closing part of nearly a month of almost identical feeding, during which the individual record was kept, but as the complete record of total milk was not made, the experiment is considered to have commenced at the date indicated in Table A, and although the figures for the Sanford feeding appear for a short period, they are really the last seven of a twenty-one days' period, during which time the averages were very close to those given.

TABLE B.
PERIODS OF SEVEN DAYS EACH.

	1	2	3	4	5	6
Milk produced, in pounds,	1604.4	1434	1439	1484	1512.8	1620
Cost of food,	\$15.0600	\$15.0600	\$19.9500	\$22.6100	\$23.0000	\$21.2800
Cost per quart of milk,	.0202	.0227	.0298	.0327	.0325	.0283

Table B is intended to show the actual amount of milk produced by the herd for each period; also the value of the food consumed in producing the same and the cost of food per quart of milk. This table shows that on account of the change from Sanford to Southern ensilage it became necessary to increase the grain ration from one and one fourth pounds of mixed grain to six pounds of mixed grain and buckwheat before the yield was restored to its former amount, and in so doing the cost of a quart of milk was increased from 2.02 cents to 3.25 cents; or, if we take the cost of the milk required to make a pound of butter, it is increased from 23.7 to 30 cents, an increase of $26\frac{1}{2}$ per cent.

During the sixth period the grain was changed, reducing the

cost of the daily ration 1.33 cents, but in no way decreasing its efficiency. The result of this change was to produce milk at 2.83 cents per quart, and butter at 26.9 cents, a cost still 13½ per cent above the cost while the Sanford corn ensilage was being fed. These figures show a most decided difference in favor of an ensilage produced from mature corn, with a good proportion of ears that were well past the boiling stage, or, as is commonly said, "past the milk."

The next feeding was with Northern corn ensilage, stored whole. Unfortunately, an important step in the investigation was omitted at this point, which prevents a direct comparison of the Southern corn ensilage and the Northern. There should have been two or three periods of feeding and the same grain ration as that used in Period 6. Instead of this the grain ration was reduced to a very small amount, — one and one fourth pounds of gluten and corn and cob meal. With this reduction the yield fell off in a few cases, but in the majority of the records it increased, reaching a maximum during the seventh period in the total yield. The new ration gave an increase of 13 per cent, reducing the cost of a quart of milk from 2.83 cents to 2.17 cents, thus nearly reaching the level of the first period.

Period 8 shows a marked falling off in yield of milk in all cases. The total for herd falls off 12 per cent; the total for the ten cows whose individual record was kept drops 11 per cent. The only change of food in this period was the substitution of two pounds mixed corn and oats in place of the gluten and corn mixture of Period 7, but as only one and one fourth pounds of the latter had been fed, the two pounds would be fully equivalent; hence we must look for some other cause for this sudden decrease. In Cut 1, section 3, I have plotted a curve representing the average temperature for each period. This curve is made up from Table C.

TABLE C.

Period,	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Av. temp. in degrees,	35	30	27	15	19	11½	0	-1	18½	12	17	31	12	18½	31½	24	28

These are outdoor and not stable temperatures. It was noticed that the temperature was not sufficiently variable to make any ap-

preciable difference indoors during the first six periods, but during the seventh period there were two days of very cold weather followed by a few days of warm weather. These two days brought down the average temperature but did not affect the milk flow, as the stable temperature was not greatly reduced; but in the eighth a severe period of windy days, with unusually low temperature, made the stables very cold. This condition of affairs undoubtedly caused the falling off in product, and therefore the food cannot be charged with being of less nutritive value. During Periods 9 and 10 there was an increase of milk, but only slight. From Periods 10 to 15 there is a comparatively uniform falling off, amounting to two per cent per period. The result of this was to slightly but constantly increase the cost per quart of milk.

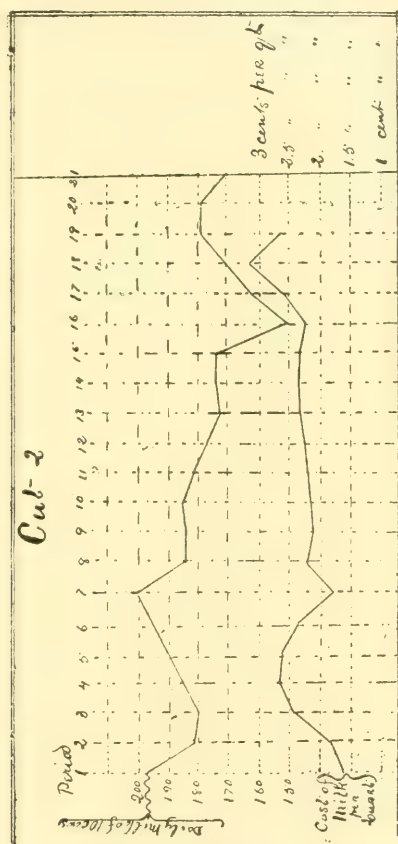
Period 16 marks a radical change of food and a sudden falling off of milk flow, amounting to nearly 22 per cent. The food for this period was early cut herd's-grass hay, clover mixture, and the same grain mixture as previously fed. So radical a change from succulent food to dry fodder might naturally be expected to cause a shrinkage out of proportion to the actual fall of feeding value of fodder, but it will be noticed that although the cows were fed all they would eat, yet there were but ten and one half pounds eaten daily, which, at the prices adopted for estimating values, makes the cheapest daily ration fed, so far as actual cost is concerned. The shrinkage was so great that financial considerations induced us to change the ration at the end of a single period back to the former ensilage ration, and by so doing the yield was brought back by half the amount of the previous shrinkage. At this point the ensilage gave out and in its place a ration containing cured corn fodder was substituted, also a large addition was made to the grain portion of the food. A substantial increase of milk was the result.

TABLE D.

LIVE WEIGHT OF TEN COWS FOR TWENTY-ONE PERIODS.

Period,	1	2	3	4	5	6	7	8	9	10	11
Weight,	9049	9119	9083	9003	9145	9157	9127	9006	9101	9097	9221
Period,	12	13	14	15	16	17	18	19	20		
Weight,	9107	9154	9069	9119	8905	9280	9358	9254	9399		

This shows a moderate increase in live weight throughout, though in Period 8 the effect of the cold weather is indicated by a shrinkage.



Cut 2 shows by a curved line the daily yield per period of the ten cows whose individual record was kept, and also by another curve the price per quart of milk. This last is important, showing, as it does, the financial side of the whole work.

COST OF PRODUCING MILK.

Commencing at Period 1 we find the cost to be 1.65 cents per quart. Changing to Southern ensilage increases this to 1.86 cents, and in our efforts to restore the loss of yield by feeding more meal, we made milk at a cost of 2.47, 2.70, 2.68, and 2.36 cents. The upward tendency of the curves in Periods 2 to 5 shows increased cost. Period 6 shows that a substitution of gluten meal instead of the grain previously fed had the effect of materially reducing the cost. Period 7 marks a low cost and high yield. With the loss of yield in Period 8 we note an increased cost, and then follow several periods of diminishing yield and slowly increasing cost. Period 16 shows an unusual circumstance; the sudden falling off of milk would, under most circumstances, be attended by an increased cost per quart, but in this case both quantity and cost go down at the same time. This is followed by a sharp increase both in quantity and cost.

Taking all the results as they stand our ten cows produce milk at the following average prices per quart:

TABLE E.

Food.	Whole herd.	Ten cows.	Best cow.*	Poorest cow.
	cts. per qt.	cts. per qt.	cts. per qt.	cts. per qt.
Sanford	2.02	1.65	1.32	2.69
Southern corn.....	2.92	2.44	1.95	4.49
Northern corn.....	2.54	2.24	1.66	4.04
Hay.....	2.79	2.28	1.20	4.73
Corn fodder.....	3.45	2.92	1.81	5.35

* After the thirteenth period a new cow, No. 4, came in and this reduced the individual cost of milk produced for "best cow."

WHEN TO CUT CORN FOR ENSILAGE.

Several inquiries have been addressed to this station relating to the time of cutting corn for ensilage, and as the season for securing this crop is rapidly approaching, I have changed my original plan of issuing a bulletin on Chemical Fertilization and have substituted in its stead a partial answer to the above-mentioned questions.

There must be a time somewhere between seeding and full maturity when corn is at its best as a forage crop, and it has been our aim to practically determine this, if possible. The data presented in this bulletin are not offered as conclusive evidence in the case, but simply as the first steps toward proof, and but for the demand for information on the part of the farmers, I should prefer to have another year's results before publishing those of last year. The plan of the work was to select samples from each of the four varieties of corn experimented with at various intervals and to note their height, weight, and degree of maturity. The per cent of water was then determined and a complete analysis of the dry substance made. This work was carried out as fully as the limited means at that time available would permit. The amount of work was too small for the best results, but so far as it went it was carefully conducted.

Table A shows as follows: Column 1, the variety of corn; 2, date of sampling; 3, per cent of water at the time samples were taken; 4, per cent of dry substance; the next seven columns show the per cent of albuminoids, ether extract, fiber, nitrogen-free extract, total ash, phosphoric acid, and potash. In other words, this table shows complete analyses of four varieties of corn at four periods, or, in all, sixteen analyses.

TABLE A.

KIND OF CORN.	Time of sampling.	Chemical composition.										100 parts of water-free or dry substance contain			
		Water.	Dry substance.	Albuminoids.	Ether extract.	Fiber.	Nitrogen-free extract.	Ash.	Phosphoric acid.	Potash.	Albuminoids.	Ether extract.	Fiber.	Nitrogen-free extract.	Ash.
Southern ensilage corn.....	July 26.....	91.25	8.75	1.60	.34	2.03	3.99	.79	.0121	.0340	18.31	3.90	23.20	45.59	9.00
Southern ensilage corn.....	Aug. 5.....	89.19	10.82	1.52	.51	3.05	4.81	.93	.0295	.0613	14.06	4.70	28.20	44.44	8.00
Southern ensilage corn.....	Aug. 19.....	84.95	15.05	2.25	.75	3.90	7.11	1.04	.0275	.0572	14.98	5.00	25.90	47.22	6.90
Southern ensilage corn.....	Sept. 16.....	75.40	24.60	2.36	.58	5.95	14.58	1.13	.0269	.0917	9.59	2.35	24.20	50.26	4.60
Sanford	July 26.....	90.85	9.15	1.42	.61	2.06	4.31	.75	.0271	.0604	15.61	6.70	22.50	46.99	8.20
Sanford	Aug. 5.....	86.79	13.21	1.63	.73	3.06	6.88	.90	.0568	.0457	12.35	5.50	23.15	51.70	7.30
Sanford	Aug. 19.....	86.75	13.20	1.40	.57	3.28	7.27	.73	.0673	.0322	11.26	4.30	24.10	54.84	5.50
Sanford	Sept. 16.....	77.20	22.80	2.11	1.08	4.81	13.85	.93	.0619	.0804	9.25	4.73	21.07	60.75	4.10
Pride of North.....	July 26.....	90.65	9.35	1.03	.44	2.20	4.00	.90	.0619	.0886	17.50	4.70	24.45	42.75	10.60
Pride of North.....	Aug. 5.....	87.56	12.44	1.97	.50	3.35	5.55	1.02	.0538	.0886	15.81	4.52	26.00	44.61	8.10
Pride of North.....	Aug. 19.....	82.25	17.75	1.92	.67	3.97	10.27	.90	.0688	.0414	10.83	3.90	22.34	57.86	5.07
Pride of North.....	Sept. 16.....	70.45	29.55	3.59	1.59	6.04	16.96	1.77	.0888	.0342	11.08	5.35	20.45	57.20	6.00
Northern field corn.....	July 26.....	87.75	12.25	1.79	.82	2.99	5.58	1.07	.0367	.0341	14.58	6.70	24.40	45.57	8.75
Northern field corn.....	Aug. 5.....	86.10	13.90	1.88	.62	3.25	7.51	.66	.0392	.0268	13.44	4.40	23.40	54.08	4.68
Northern field corn.....	Aug. 19.....	81.45	18.55	1.89	.59	4.50	10.48	1.02	.0398	.0534	10.20	3.20	24.60	50.52	5.43
Northern field corn.....	Sept. 16.....	72.40	27.60	2.05	1.30	4.79	17.17	1.69	.0600	.0800	9.60	4.70	17.35	62.23	6.13

In any article of food, whether for man or beast, the valuable part, or that which sustains life and nourishes the body, is included in the dry substance ; hence, it is not always the total weight that is the best guide, but it is often true that the weight is a very poor indicator of value. The method of determining the dry matter in any substance is a comparatively simple one in the laboratory ; a small sample is weighed and dried at a temperature of 212 degrees until it no longer loses weight, then the final weight is noted, and the difference between this and the original weight of sample shows the amount of water that was originally in the substance under consideration, for at the temperature above mentioned only the water is driven off.

Taking our third column in the table, it is seen that at any time there is a very large per cent of water in the corn. Take for illustration the sample of ensilage (Southern) corn July 26. Here was 91½ per cent of water. From Table F we see that an average stalk weighed 15 ounces ; 91½ per cent of 15 is 13.68, the amount of water which such a stalk contained, leaving only 1½ ounces of dry substance. Take the same variety of corn September 16, and there was still 75.4 per cent of water, and as an average stalk weighed almost three pounds, it follows that each stalk contained two pounds three and one half ounces, or more than a quart, of pure water, leaving but three fourths of a pound of actual nutritive matter. This point is dwelt upon for the purpose of showing that pounds or tons per acre are not necessarily reliable standards of value, and also to show that not everything stored in the barn or in the silo is food, but rather that in these cases but a small portion is actual nutrient material. A study of Table A shows that in each variety of corn there was a substantial increase in the per cent of dry matter, as is shown by Table B, in which the number of pounds of dry substance in a ton of the corn is given for each variety at each time of sampling.

TABLE B.

POUNDS OF DRY SUBSTANCE IN ONE TON OF 2,000 POUNDS.

DATE.	Southern or ensilage corn.	Sanford.	Pride of the North.	Northern field corn.
	lbs.	lbs.	lbs.	lbs.
July 26.....	175	183	187	245
August 5.....	216	264	248	278
August 19.....	301	264	355	371
September 16.....	492	450	591	552

It will be seen from this that the value of the corn per ton increased in a marked degree from August 19 to September 16, but this is deceptive, as a part of this is due to a decrease of weight per acre by loss of water in maturing. So far as it extended, this loss was precisely like the drying of hay, making the increased value per ton very marked; but from Table F it will be seen that the actual increase per acre is much less.

In Table C I have arranged the per cent of increase per ton and per acre for the period from August 19 to September 16.

TABLE C.

PER CENT OF INCREASE OF DRY SUBSTANCE FROM AUGUST 19 TO SEPTEMBER 16.

Variety.	Per ton.	Per acre.
Southern corn.....	63.4	37.7
Sanford.....	72.7	32.0
Pride of the North.....	66.4	16.8
Northern field.....	48.8	35.3

A glance at this is sufficient to show that a part of this apparently large gain per ton is not a gain at all. The fact remains, however, that there is about 33 per cent of actual gain in this last period.

Returning to Table B we shall see that there is a marked difference, not only between the varieties, but also in the same variety at different dates, and so far as this table is concerned it is evident that the quality of the product in every case improved up to the time of cutting.

TABLE D.

VARIETY OF CORN.	Estimated dry substance per acre.				Per cent of increase for each period over the preceding one.			Gain per cent from July 26 to Sept. 16.
	July 26.	Aug. 5.	Aug. 19.	Sept. 16.	Aug. 5.	Aug. 19.	Sept. 16.	
Southern.....	1,147	3,536	7,333	10,102	207.4	107.3	37.7	780.7
Sanford.....	972	3,919	5,292	6,980	303.2	35.3	32.0	618.0
Pride of North....	1,012	3,366	6,340	7,410	232.6	88.3	16.8	632.2
Northern field....	2,135	4,925	6,519	8,832	126.0	32.4	35.3	313.6

Table D is made up from Table F and shows in a condensed form the rate of increase of dry matter. In discussing this table it must be borne in mind that the four varieties of corn were unequally developed though planted at the same time. Some were earlier than others, and from notes recorded when the samples were taken I have prepared the following table, showing in a concise form the relative condition at each period.

TABLE E.

CONDITION OF CORN AS REGARDS MATURITY.

VARIETY OF CORN.	July 26.	Aug. 5.	Aug. 19.	Sept. 16.
Southern.....	Tassel not formed.	Tassel not in sight.	Silk just in sight	Kernel blistering.
Sanford.....	Tassel just in sight.	Tassel out but no silk.	Kernel blistering.	Kernel full.
Pride of North.....	Tassel not in sight.	Tassel and silk in sight.	Kernel well formed, silk brown.	Kernel full.
Northern field.....	Tassel well out.	Kernel blistering.	Kernel full but not glazed.	Kernel wholly glazed, husk yellow.

The Sanford and Pride of the North, the latter being a dent corn raised in Minnesota, were about alike in earliness, the Sanford being a little ahead July 26, and a little behind September 16, showing that the Minnesota corn is a little more rapid in growth, thus making it a little more certain in maturing its seed. It will be seen from Table D that the Sanford increased much more from July 26 to August 5 than did the Pride of the North, but for the next period the increase was reversed. For the whole period, however, the increase was nearly the same. With the Southern corn the increase of dry substance was very marked up to August 19, at which time its tassels were not in sight. This

rapid gain no doubt continued for several days after this date. The total gain from July 26 to September 16 is greater in this variety than in either of the others. Because its period of rapid increase is longer and if early frosts did not interfere with the perfect maturity of this variety there is no doubt but that it would produce a more profitable crop per acre than any kind of corn thus far experimented with; but, as a matter of fact, this variety, in point of development, is in the same condition September 16 that the Sanford is in a month earlier, or the Northern field corn forty days earlier. The Northern field corn increased less than either of the other varieties, but this is more apparent than real, for it was so far developed July 26 that it had a large amount of dry substance; in fact, its period of rapid increase was past, it being fully twelve days ahead of the Sanford and Pride of the North, and forty days ahead of the Southern.

TABLE F.

VARIETY OF CORN.	Plants per acre.	Weight per stalk.				Computed weight per acre.			
		July 26.	Aug. 5.	Aug. 19.	Sept. 16.	July 26.	Aug. 5.	Aug. 19.	Sept. 16.
		oz.	oz.	oz.	oz.	lbs.	lbs.	lbs.	lbs.
Southern.....	13980	15.0	37.4	56.0	47.0	13106	32678	48875	41066
Sanford.....	17750	9.6	26.8	36.0	27.6	10625	29688	39937	30618
Pride of North.....	14433	12.0	30.0	39.6	27.8	10824	27061	35721	25077
Northern field (flint).....	22857	12.2	24.8	24.6	22.4	17428	35428	35142	32000

VARIETY OF CORN.	Actual amount of water, dry substance, and the separate constituents of the dry substance, per acre, for each variety of corn at each of the four dates at which samples were taken. (These are in pounds per acre.)									
	Water.	Dry substance.	Albuminoids.	Ether extract.	Fiber.	Nitrogen-free extract.	Ash.	Phosphoric acid.	Potash.	
Southern.....July 26, 1887	11959	1147	209.7	44.5	262.0	523	103.5	1.6	5.5	
Sanford....."	9653	972	151.0	65.0	218.0	458	80.0	2.8	6.4	
Pride of North....."	9812	1012	176.0	48.0	247.0	433	107.0	6.7	9.6	
Northern field (flint)....."	15293	2135	312.0	143.0	521.0	972	186.0	6.4	6.0	
Southern.....Aug. 5, 1887	29142	3536	496.7	166.6	996.6	1572	304.0	9.8	20.0	
Sanford....."	25769	3919	484.0	216.0	908.9	2042	267.0	17.0	12.0	
Pride of North....."	23695	3366	533.0	151.0	906.0	1501	276.0	15.0	24.0	
Northern field (flint)....."	30503	4925	665.0	219.0	1150.0	2660	232.0	13.8	10.3	
Southern.....Aug. 19, 1887	41542	7333	1098.0	366.0	1995.0	3474	490.0	13.4	28.0	
Sanford....."	34645	5292	595.0	227.0	1309.0	2903	292.0	27.0	13.0	
Pride of North....."	29381	6340	686.0	240.0	1419.0	3669	322.0	24.6	14.3	
Northern field (flint)....."	28623	6519	664.0	208.0	1603.0	3684	359.0	14.0	19.0	
Southern.....Sept. 16, 1887	30904	10102	969.0	238.0	2443.0	5987	464.0	11.0	37.6	
Sanford....."	23637	6980	646.0	331.0	1473.0	4241	285.0	.....	.....
Pride of North....."	17607	7410	815.0	399.0	1514.0	4238	444.0	22.3	8.6	
Northern field (flint)....."	23168	8832	848.0	416.0	1533.0	5404	541.0	.....	.....

In all the varieties there was a great falling off in the rate of increase immediately after the tassels were put forth, the plant evidently accumulating dry substance much more rapidly while the tassels were being developed than at any subsequent period. Table F shows the computed amount of total crop and of each constituent of the crop per acre for each variety and each period. The general indications of this table have already been noted. In the final results at harvest time it appears that the Southern corn produced the most dry substance per acre, also that the Northern field corn came next, Pride of the North next, and Sanford last, but as was shown in Bulletin 2 the feeding results show best for Sanford, the Northern coming next, and the Southern last. The Pride of the North was not experimented with in feeding. Just why the economy of the three varieties should be the reverse of their product per acre is a question hard to answer. In the case of the Northern field corn, it was fed to cows that had been long in milk, and therefore the natural shrinkage would make the cost per quart of milk greater even on the same food, and it is fair to presume that under like conditions there would have been no great difference in feeding value; but why the Sanford should prove so much the superior of the Southern can only be attributed to the fact of its being a mature plant, while the rank and late Southern corn was immature, and although chemical analysis shows them to have been nearly alike, yet the condition of the nitrogenous matter may have been such that, pound for pound, it was less valuable. This point could only have been determined by separating the albuminoid from the non-albuminoid nitrogen.

In conclusion, we may say that, all things considered, it is best to plant such varieties as will, in a given locality, produce plants having well-filled ears, the kernels being in the milk, or, better still, in the "doughy" state, and to delay the harvesting until the plant shows evident signs of ripening, such as the turning of the lower leaves, the glazing of the kernel in the flint, or the shrivelling of the dent varieties. Up to this point there is a gain in two ways: first, an actual gain in the dry matter, as shown by Table F, and, second, a loss of water (see Table A), reducing the ratio between the water and dry substance to about that required by cattle, thus improving the ensilage and reducing the labor in handling.

THE SCIENCE AND PRACTICE OF STOCK FEEDING.

For the next two hundred days the subject of stock feeding must necessarily occupy much of the time and attention of the successful New Hampshire farmer, and as the importance of this subject is often overlooked I will briefly state the latest available statistics on live stock. *

There are within our State, to-day, not far from 60,000 horses, 20,000 oxen, 95,000 cows, 50,000 other cattle, and 150,000 sheep, and the success of the year's agricultural work depends largely upon the profitable feeding of these, for it is just as important to dispose of the fodder economically as to produce it cheaply. We will assume that the average horse weighs 1,000 pounds, the ox 1,400, the cow 900, other cattle 400, and the sheep 100. This gives us the following aggregate live weight: 60,000 horses, at 1,000 lbs., 60,000,000; 20,000 oxen, at 1,400 lbs., 28,000,000; 95,000 cows, at 900 lbs., 85,500,000; 50,000 other cattle, at 400 lbs., 20,000,000; 150,000 sheep, at 100 lbs., 15,000,000. Total weight of all neat stock, horses, and sheep, 208,500,000 lbs.

It has been found by numerous experiments that on an average it will require twenty pounds of hay, five pounds of corn meal, and two pounds of cottonseed, or an equivalent of these, daily, for one thousand pounds of live weight. This is necessarily an average for horses, oxen, sheep, cows, and growing cattle. With this standard we find that the daily amount of hay and grain required for the entire winter is as follows: Hay required daily,

* Report of State Board of Equalization, 1887.

2,085 tons, for winter of two hundred days, 417,000 tons; corn meal, $521\frac{1}{4}$ tons, 104,250 tons; cottonseed, $208\frac{1}{2}$ tons, 41,700 tons.

Referring to the census of 1879 (and it is probable that our agricultural products have not varied greatly since then), we find that we produced 588,170 tons of hay, and about 80,000 tons of corn fodder, oat, wheat, and barley straw, and if we call these two thirds as valuable as hay, it will bring our available hay up to 641,500 tons. We also produced 32,806 tons of corn, and 16,281 tons of oats, and as they are of practically the same feeding value, the whole may be stated as equivalent to 40,000 tons of corn meal. It appears, then, that we have a surplus of some 225,000 tons of hay, and a deficit of 55,225 tons of corn meal, and 41,700 tons of cottonseed, or the equivalent of these in some other grain. To get some idea of the money value represented by these figures I have called the cost of hay, corn meal, and cottonseed \$8, \$20, and \$25 per ton respectively. On this basis the following statement is computed: 417,000 tons of hay, at \$8, equals \$3,336,000; 104,250 tons of meal, at \$20, equals \$2,085,000; 41,700 tons of cottonseed, at \$25, equals \$1,042,500. Total value of food required for 200 days, \$6,463,500.

The total of the hay, straw, corn fodder, corn, and oats produced amounts to \$6,119,100; thus showing that we are producing very nearly the amount of food that is required by our live stock, exclusive of poultry and hogs; but to make this fodder produce the best results it is necessary to exchange the 225,000 tons of hay for grain. Here is where a study of the science of stock feeding may aid us in the practical work. I have very little doubt but that better results might be obtained, at less cost for food, if the rations fed were better proportioned. A saving of even five per cent would amount to \$313,175 in the aggregate, and I believe much more than this may be saved.

At the outset I wish to say, that the science of stock feeding is the key to better practical work. It should go hand in hand with the practice, pointing out possible improvements and showing the losses which many old methods entail. Science can never take the place of practical knowledge, but it can point out the methods which lead to success. True science and good practice

never conflict; if theory and practice lead to opposite conclusions, either the science or the practice is wrong. A practice not based upon science may be right or it may be wrong, just as a man may guess right or wrong, but at best such practice, whether in agriculture or engineering, contains too many elements of uncertainty. Few would care to contend that the Brooklyn bridge could have been built without first theoretically determining the strain on each part; before a blow was struck, the strain on every piece in that great structure was computed, and also the dimension of the part required to safely withstand this load.

Good judgment, unaided by the science of the civil engineer, could hardly have directed the efforts of two gangs of men from points five miles apart and given us the Hoosac tunnel. The fact that small enterprises are carried through successfully without the aid of science is too often used as an argument that theory is useless; because some small stream has been successfully bridged by some one who never knew how to compute the strain on a given brace, or post, or rod, therefore there is no need of applying the principles of mechanics to bridge building. This kind of reasoning is all wrong, and, to-day, no engineering project is undertaken without first working out the most minute details from a theoretical standpoint. Every brace and bolt, post and pin, every block of granite, first appears "on paper" in the office of the draughtsman, before a blow is struck by the workmen who are to construct the bridge. Theory and practice must go hand in hand to arrive at the best results in the best way. This is as true in agriculture as in any other pursuit.

The two factors with which we have to deal in stock feeding are plants and animals, and we will briefly consider the principles of their growth and composition. Plants and animals are mutually dependent for their existence. Without plants, animals would perish, and without animals, plants would in time die for lack of an atmosphere suited to their wants.

PLANT GROWTH.

When a kernel of corn is planted under favorable circumstances it produces a stalk and ear that may weigh five pounds.

It is evident that the little kernel, weighing but a small fraction of an ounce, could not have furnished all the material from which the stalk was produced, and the soil and atmosphere must have made up the deficiency. The leaves of the growing plant absorb from the atmosphere a gas known as carbonic acid gas; the roots take up water in which potash, iron, sulphur, lime, phosphoric acid, and magnesia are dissolved, and the roots and leaves both take up nitrogen in combination with other elements. Within the plant these simple substances are combined in wonderful ways, forming many compounds having unlike properties; for example, the carbonic acid taken in through the leaves, and the water taken up by the roots, furnish the elements from which starch, sugar, oil, vegetable acids, mucilage, gum, etc., are produced. By the addition of nitrogen and sulphur a class of compounds is produced which resemble the white of eggs. Wheat gluten is an example of this class. One of the chief characteristics of plants is this power of taking the elements contained in the soil and air, and from a few, forming an almost endless variety of substances having the most diverse properties. Sugar and acids, starch and oil, strychnine and quinine are a few of the many. This power is not found in animals. Not a grain of starch was ever produced from the elements of carbonic acid and water, except by plants; animals are dependent upon plants for their food. During the growth of plants they are constantly taking in carbonic acid, using a part of it in the production of starch, sugar, etc., and giving off oxygen; the result of this is to use up the carbonic acid of the atmosphere and overcharge it with oxygen; animals, however, produce just the opposite effect; they take in and use oxygen and give off carbonic acid. This is the one thing that keeps nature's books balanced.

A plant put under a tight jar would in time so far use up the carbonic acid as to die from lack of food; a mouse under another jar would use up the oxygen and increase the carbonic acid until suffocated; the two if put under the same jar would keep the air right for both. The oxygen given off by the plant would supply the mouse, while the carbonic acid exhaled by the mouse would furnish just the kind of food necessary for the plant.

FOOD.

This word has been used. What does it mean? Any substance that can support life, or help to support it, is food. Plants require food to support them when growing; they find it in the air and in the soil. The food of animals consists of any and all substances which can be taken into the system and which contribute towards supporting life or causing growth, and it is prepared for them by plants. A food may be complete, that is, capable of furnishing all that an animal requires, as grass, or it may be incomplete, or not capable of sustaining life when fed alone, e. g., starch, sugar, oil, etc. These are just as much food, however, as grass.

It has been intimated already that plants are made up of unlike parts, or constituents, and the first step towards an understanding of the use of food is to know what the food is. The chemist must be consulted in determining this. It is true that the eye detects differences in the external appearance of food, but if some one should ask for the exact difference between corn meal and shorts it would be impossible to answer him without knowing the chemical composition of the two. In the machine shop the mechanic learns the peculiarities of different machines by taking them apart and noting their construction. In the laboratory the chemist learns the characteristics of various plants and fodders by taking them apart, so to speak. Instead of the vise he uses the crucible; in place of the monkey wrench he uses various acids, alkalis, etc., to tear apart the plant and separate it into the constituents of which it is made up; instead of the accurate rule measuring to the $\frac{1}{10000}$ part of an inch, he uses delicate balances, which weigh to the $\frac{1}{233502}$ part of an ounce. The object of both the mechanic and the chemist is to get a knowledge of the internal structure which simple inspection cannot give. If plants were made up of but one kind of material there would be no need of chemical analysis, but such is not the case. If we press out the juice of a stalk of corn and evaporate it we get sugar. If the dried kernels are ground into a paste, with water, and then washed and manipulated in certain ways a large per cent of starch is obtained. If another sample of this corn meal is boiled with ether and the ether poured off into a clean dish and evaporated,

there will be found a clear yellowish oil, or fat, which the ether dissolved out of the corn. If wheat dough is washed until the starch is removed, a tough, sticky mass is left, which is known as gluten. These four substances represent the most important constituents found in fodders.

The chemical composition of fodders and feeding stuffs is determined and expressed in the following way: Water exists in all plants; the amount is determined by weighing a sample of the given substance and then drying it at 212 degrees until it ceases to lose weight; the loss is water; the part which remains is called water-free substance and is made up of: 1. *Albuminoids* or a substance resembling albumen or the white of eggs; wheat gluten, or "wheat gum," already alluded to, is the most familiar illustration of this class. The albuminoids contain not far from sixteen per cent of nitrogen, and on account of this they are spoken of as the nitrogenous constituents. 2. *Nitrogen-free extract* includes starch, sugar, substances resembling gum, mucilage, etc. 3. *Fiber*; this is the woody matter found in all plants; in the flax and cotton plants it is the part that gives us the material from which linen and cotton cloths are made. 4. *Fat*; this is determined by dissolving with ether and evaporating the ether, leaving the fat or oil to be weighed. In the seeds of some plants (for example, cotton and hemp) the fat is found in large quantities and is pressed out and used for numerous purposes. 5. *Ash*; this is the part left after burning a sample of the substance.

The following table shows the chemical composition of corn meal and shorts; the figures are an average of many determinations made at the Massachusetts Experiment Station:

	Corn meal.	Shorts.
Water	13.16	11.5
Water-free substance	86.84	88.5
<hr/>		
Water-free substance contains:		
Albuminoids	10.19	16.1
Nitrogen-free extract	68.92	52.3
Fiber	2.50	10.0
Fat	3.87	4.0
Ash	1.36	6.1
	<hr/>	<hr/>
	86.84	88.5

This is the customary method of stating an analysis, showing the total composition of fodders, but it is not in shape to be used by the feeder as a means of determining the nutritive value of these two products, because the animal fails to get the full amount of nutritive matter shown by analysis. Food, to be of any value to an animal, must be rendered soluble, so that it can be absorbed and carried through the system in the blood. This process of making the constituents of the food soluble, is known as digestion, and is effected by the juices of the mouth, stomach, intestines, etc. If animals could digest the whole of the albuminoids or other parts of corn meal or shorts, then the analyses above given would show the nutritive value ; but it has been found that such is not the case. Only a part of each substance is digested. We may illustrate this point by supposing that some one puts on the market a mixture of coal and gravel stones, eighty pounds of the former and twenty pounds of the latter in each one hundred pounds. The value of this, as fuel, is only that of the eighty pounds of coal, and any estimate based upon the total weight would be erroneous. In the same way each constituent of corn meal is made up of two parts, one digestible, corresponding to the coal in our assumed mixture, the other indigestible, and corresponding to the gravel stones. The value of any kind of food is based, not on its total composition, but on the digestible parts. It is necessary, therefore, to know what portion of each constituent is rendered available by the digestive juices. The method employed is briefly as follows : An animal is placed in a stall where no food can be wasted, a record of all food consumed is kept, and from the analysis it is possible to compute the exact amount of albuminoids, fiber, nitrogen-free extract, and fat that has been taken into the system during the entire experiment. All the parts of the food that are not digested pass unchanged through the intestines and are found in the manure ; consequently if all the manure is weighed, and samples are analyzed, it is easy to compute the albuminoids, fiber, nitrogen-free extract, and fat that have passed through the animal unchanged, and these subtracted from the amounts taken into the system will show what portion has been rendered available by digestion. The degree of digestibility is usually expressed by stating the

number of pounds that are digestible in one hundred pounds of each constituent. For example, it has been found that of each one hundred pounds of albuminoids fed in corn meal eighty-five pounds are digested. This eighty-five represents the per cent of digestibility of albuminoids in corn meal, and is called digestion co-efficient. Of the nitrogen-free extract, ninety-four out of every one hundred pounds is digestible, in other words, ninety-four is the digestion co-efficient of the nitrogen-free extract of corn meal. In the same way it is found that thirty-four and seventy-six are the digestion co-efficients of the fiber and fat respectively. For shorts the figures are eighty-eight, eighty, eighty, and twenty, for albuminoids, nitrogen-free extract, fat, and fiber. To get the analyses above given into shape to be of value to the feeder, it is necessary to determine what the composition is when only the digestible part is considered. This is done in the following table :

TABLE.

	CORN MEAL.			SHORTS.		
	Total composition.	Digestion co-efficient	Amount digestible in 100 lbs. meal.	Total composition.	Digestion co-efficient	Amount digestible in 100 lbs. shorts.
Water.....	13.16			11.5		
Water-free substance....	86.84			88.5		
Albuminoids.....	10.19	85	8.66	16.1	88	14.17
Nitrogen-free extract....	68.92	94	64.78	52.3	80	41.84
Fiber.....	2.50	34	.85	10.0	20	2.00
Fat.....	3.87	76	2.94	4.0	80	3.20
Ash.....	1.36			6.1		

In this table, in the third and sixth columns, we have the available nutritive material in corn meal and shorts ; but as the digestible nitrogen-free extract and digestible fiber are equally valuable these two may be added together, and in most stock-feeding tables this is done, the name carbo-hydrates being given to the sum of the two ; this term, carbo-hydrate, means that portion of the digestible part of food which is made up of three elements, carbon, hydrogen, and oxygen, the last two elements being in

the ratio of two parts of hydrogen and one part of oxygen. The ordinary table would give the above results in the following form :

		Digestible.		
		Albuminoids.	Carbo-hydrates.	Fat.
Corn meal	. . .	8.66	65.63	2.94
Shorts	. . .	14.17	43.84	3.20

In the tables given in this bulletin I propose to modify this form of statement, with the hope that it will very much simplify the matter of using them in practical work, and I will explain the modification of this point. It is customary to give what is called the nutritive ratio of each food. Warrington calls it the albuminoid ratio. This means the ratio of digestible albuminoids, or nitrogenous matter, but as it has been found that a pound of fat will produce two and one half times as much heat, when burned, as a pound of starch or sugar, it has been assumed that the fat in fodders is two and one half times as valuable as the carbo-hydrates for feeding purposes ; consequently in determining the nutritive ratio the fat is multiplied by two and one half and the product added to the carbo-hydrates ; this has the effect of making the whole of the non-nitrogenous part of the food appear as starch or sugar. An example will best show how this is done. Take the corn meal above tabulated : there are 8.66 pounds of digestible albuminoids ; there are of carbo-hydrates (starch, sugar, fiber, etc.) 65.63 pounds ; of fat 2.94 pounds, which multiplied by $2\frac{1}{2}$ gives the equivalent of carbo-hydrates, 7.35 ; the carbo-hydrate equivalent becomes 72.98 ; the ratio of nitrogenous to non-nitrogenous is as follows : 8.66 to 72.98, or as 1 to 8.4. This last is the nutritive ratio of corn meal. The modification alluded to is this : instead of giving the carbo-hydrates and fat in separate columns, I shall multiply the fat in each food by two and one half and add it to the carbo-hydrates, and give the sum in one column under the term non-albuminoids. The reason for this will appear in the practical work of computing rations, under "practical feeding." The table last given would be changed to the following :

	Albuminoids.	Non-albuminoids.	Nutritive ratio.
Corn meal,	8.66	72.98	1 : 8.4
Shorts,	14.17	51.84	1 : 3.6

What are the uses of food in the animal system? Having considered what food is, and finding it made up of parts having unlike qualities, it is very natural to ask if the albuminoids and carbo-hydrates are of equal value; before this can be answered it will be best to see why animals require food. Some of the uses of food may be best explained by comparing the animal to the locomotive. We will take the case of a locomotive standing idle in the yard, with the temperature of the atmosphere at zero. Under these conditions heat is constantly being given off to the air, and, if left to itself, after a time the fire goes out, and the water gradually cools off, until it freezes. This tendency is caused by what is known as radiation of heat, and the result is that the locomotive and air in time come to the same temperature. To prevent this, either wood or coal is burned in the fire-box. An ox, standing in a cold barn or out of doors, loses heat by radiation, just as the locomotive does, and if this loss was not made good in some way, it would only be a short time before the temperature of the air and the temperature of the ox would be alike; but as a matter of fact the temperature of the blood never varies much from 101° in health, and it makes no difference whether the air is at 30° below zero or at 90° above. The temperature of the body is kept up by the food consumed, just as that of the locomotive is by the wood burned. Again, the fuel consumed by a locomotive while standing idle is only an amount sufficient to supply the loss of heat; this is a comparatively small amount. When the same locomotive is coupled to a train of loaded cars, and is started on an up grade, it will be found necessary to open the drafts and increase the consumption of fuel; in drawing this load, energy is required, and this is obtained from the extra fuel consumed. An ox or a horse, when drawing heavy loads, must also expend more energy than when standing in the stall, and to develop this energy requires more food. Food is to the ox what fuel is to the locomotive.

There is one other object for which we feed, namely, the production of growth; under this head comes increase of live weight, whether in growing animals or fattening one, growth of wool, or the production of milk. If an animal weighs one hundred pounds at birth and fifteen hundred pounds when three years old this gain

of fourteen hundred pounds must come from the food and water used ; if a cow yields annually six thousand pounds of milk, this also must come from the food and water consumed. The uses of food, then, are to produce heat, to produce force (muscular energy), to produce new tissue (including increase of live weight, growth of wool, or yield of milk).

Having noted the use to which food is put, we may inquire whether one part of the food is better adapted to one requirement, and another part to another requirement, or whether all the digestible parts are equally effective.

1. What part of the food produces heat ? The best authorities answer this by saying that the changes which take place in all parts of the body produce heat. The contraction of a muscle, the activity of the liver, etc., all liberate heat, and hence it cannot be said that one constituent of the food more than another is the source, but that both the nitrogenous and non-nitrogenous contribute toward keeping up the temperature.

2. Force is produced in much the same way as heat, from all the constituents of the food.

3. New tissue. There has been much conflicting testimony on the formation of new tissue, the chief difficulty being to find the source of fat. At first, it was held that the animal only sorted out and stored the fat already existing as fat in the food ; experiments soon showed that the fat produced by pigs and in the milk of cows largely exceeded that taken into the system in the food. It was then held that the albuminoids might make up the deficiency, or, by others, that the albuminoids were the only source of fat. Lawes and Gilbert showed, in certain experiments that they carried on, that not only was there a lack of fat in the food, but that the fat and albuminoids taken together could not produce all the fat that was stored up, and consequently that the starch or sugar of the food must have contributed. It may be safely said that the elements from which the animal fats are made up come from the albuminoids, carbo-hydrates, and fat. It is probable that the muscle and other nitrogenous parts of the animal come from the albuminoids of the food. This, however, is not fully concurred in by all physiologists.

The changes which food undergoes in the animal system are

very complex, and just how hay, grain, cottonseed, grass, ensilage, etc., are changed into milk, muscle, blood, wool, fat, etc., is a problem which physiological chemistry has not yet definitely solved.

The whole object of this brief discussion of the principles of animal nutrition is to enable us to understand the meaning and use of the stock-feeding tables which have been prepared for us, and as an intelligent use of these tables cannot fail to improve the methods of feeding too often practiced in our State, I shall try to show just what the tables are and how they are to be used.

PRACTICAL USE OF FEEDING TABLES.

Two questions cover the whole field. 1. How much food does an animal require? 2. How can a ration which will furnish this amount be decided upon? The answer to both comes from the tables that will be given later in this bulletin, and therefore I will explain what the tables are and how they were prepared.

The knowledge which we have concerning the requirements of various animals, under varying circumstances, comes largely from German scientists, who have devoted much time and money to agricultural investigations. Their methods of working out the results that we have obtained may be best explained by giving the actual records. The first step is to determine the amount of food actually required to keep a given animal, without gain or loss; this is called a "maintenance ration." From "Armsby's Manual of Cattle Feeding," I select an experiment made by Henneberg and Stohmann. Oxen weighing one thousand pounds were fed on the following rations daily:

	Experiment 1.	Experiment 2.	Experiment 3.	Experiment 4.	Experiment 5.
	lbs.	lbs.	lbs.	lbs.	lbs.
Clover hay.....	19.5	3.7	2.6	3.8	.....
Mangolds.....	25.6
Oat straw.....	13.0	14.2	.....	12.6
Rye straw.....	13.3	.....
Rape cake *.....6	.5	.6	1.0

* This rape cake is of about the same composition as the linseed found in the markets of the United States.

All of these except the first kept the animals in good health, of a constant live weight, or nearly so. Let us take the third experiment and study it. We have a ration that will keep a 1,000-pound ox without loss. This question comes up: What amount of albuminoids, carbo-hydrates, and fat does this furnish? The experimenters analyzed the foods and determined the digestibility of each constituent. The following table shows the digestible matter per one hundred pounds of each article used in the test:

100 pounds of	Albuminoids.	Carbo-hydrates.	Fat.
Clover contains.....	6.00	39.5	1.00
Oat straw contains.....	.87	45.5	.30
Linseed contains.....	27.00	28.5	9.00

With this table we can compute the exact amount of digestible matter that the ox received in that ration. This is given below.

	Furnished digestible.	Albuminoids.	Carbo-hydrates.	Fat.
	lbs.	lbs.	lbs.	lbs.
Clover.....	2.6	.156	1.02	.026
Oat straw.....	14.2	.123	6.46	.042
Linseed.....	.5	.135	.14	.045
Total digestible matter daily.....		.414	7.62	.113

Here we have a definite quantity of nutritive matter that was found capable of supporting an ox; now if from any combination of food we are able to supply this amount of digestible matter, we may be tolerably certain that the results will be satisfactory for an animal that is standing still in a warm stall. A majority of farmers, however, do not care to feed simply for

maintenance, but want growth, or milk, or wool. The same method of investigation has been applied to all cases. Cows giving milk were fed on various combinations of such fodders as the German farmers produce; after many trials those rations which seemed best adapted were taken as standard, and when their value was established by enough trials, the food was analyzed and the same method of computation applied as in the case above tabulated. In the same way fattening cattle, horses at work and resting, cows not in milk, growing cattle, swine, etc., have been experimented on and standard rations established.

Two tables are necessary in computing rations, one showing what quantity of albuminoids and non-nitrogenous material is required daily by various animals for each one thousand pounds of live weight, the other showing the composition of the digestible part of all the foods that the farmer is likely to have at hand.

The amount of digestible substance required daily by domestic animals per 1,000 pounds of live weight, is found in the table which follows:

TABLE B.
FEEDING STANDARD.

1,000 pounds of live weight require daily	DIGESTIBLE SUBSTANCES.		Nutritive ratio.
	Albuminoids.	Non-albuminoids.	
	lbs.	lbs.	
Oxen, at rest.....	0.7	8.37	1 : 12
Oxen, moderately worked.....	1.6	12.05	1 : 7.5
Oxen, heavily worked.....	2.4	14.45	1 : 6
Oxen, fattening.....	3.0	16.55	1 : 5.5
Cows, giving milk.....	2.5	13.50	1 : 5.4
Horses, light driving.....	1.8	12.70	1 : 7
Horses, heavily worked.....	2.8	15.40	1 : 5.5
Growing cattle.....	2.5	15.00	1 : 6
Sheep, for wool.....	1.2	10.80	1 : 9
Sheep, fattening.....	3.0	16.45	1 : 5.5
Swine, fattening.....	4.0	24.00	1 : 6

TABLE C.
FEEDING STUFFS.

100 pounds of the following materials contain	DIGESTIBLE SUBSTANCES.		Nutritive ratio.
	Albuminoids.	Non-albuminoids.	
	lbs.	lbs.	
Herd's-grass (timothy).....	3.45	48.71	1 : 14
Redtop hay.....	4.74	48.19	1 : 10
Mixed hay.....	3.71	47.61	1 : 12.8
Mixed hay and clover.....	4.85	46.40	1 : 9.5
Salt marsh hay.....	2.27	45.83	1 : 20
Clover hay.....	7.53	43.60	1 : 5.7
Vetch hay.....	9.20	37.67	1 : 4
Oat hay.....	4.85	44.83	1 : 9.2
Winter rye hay.....	10.30	51.70	1 : 5
Millet hay.....	4.67	45.43	1 : 9.7
Rowen.....	6.81	41.74	1 : 6.1
Oat straw.....	1.45	43.31	1 : 30
Bean vines.....	5.00	36.45	1 : 7.3
Corn stover.....	2.15	41.38	1 : 19
Ensilage (Northern corn).....	1.47	14.80	1 : 10
Ensilage (Southern corn).....	1.32	12.73	1 : 9.6
Ensilage (sweet corn).....	1.84	14.02	1 : 8
Pasture grass.....	2.50	10.90	1 : 4.4
Green rye.....	2.00	12.87	1 : 6.4
Potatoes.....	1.42	17.70	1 : 12.4
Sugar beets.....	1.50	7.81	1 : 6.5
Corn and cob meal.....	7.13	66.52	1 : 9.3
Corn meal.....	7.78	71.60	1 : 9.2
Barley meal.....	9.54	65.05	1 : 6.9
Oats, ground.....	9.90	58.16	1 : 5.9
Buckwheat, ground.....	7.70	66.71	1 : 8.7
Linseed (old process).....	28.12	53.21	1 : 1.9
Linseed (new process).....	28.57	44.30	1 : 1.5
Cottonseed meal.....	31.36	42.26	1 : 1.3
Shorts.....	13.26	52.70	1 : 4
Middlings.....	13.35	57.72	1 : 4.3
Gluten.....	25.14	61.90	1 : 2.4
Brewers' grains (wet).....	4.73	16.22	1 : 3.4
Malt sprouts.....	18.36	52.18	1 : 2.8
Cow's milk (whole).....	3.00	14.00	1 : 4.6
Skimmed milk.....	3.23	6.94	1 : 2.1
Buttermilk.....	2.90	4.80	1 : 1.5

The table above given is made up chiefly from the compilations of Dr. Jenkins, in the 1887 Connecticut state report, together with full special analyses from Goessman, Armsby, and Jordan. The digestion co-efficients were taken from the Massachusetts state report for 1887, and a few from the American results, obtained by Jordan and Armsby.

With these two tables any farmer can gain a tolerably correct idea of what his live stock require, and also can compound rations which will satisfy these requirements, and if from the variety of

fodders which are to be found on most farms, together with such grains as are to be had in the market, a daily ration can be formed which will contain the digestible albuminoids and non-albuminoids, shown by Table B to be necessary for a given animal under given conditions, it may reasonably be expected that such a ration will be very satisfactory. I do not, however, wish to be understood as claiming that these tables are absolutely exact, for they evidently cannot be, but they are guides to good and economical feeding, and when supplemented by good judgment and close observation are sure to give much better results than can be obtained by good judgment alone. No man can afford to disregard the experience of careful men who have spent a lifetime in searching for the laws which govern the nutrition of animals, and the man who regards his own limited experience as superior to that of scores who have spent their whole time in studying this difficult problem, stands in his own light, because certainly no evil can result from accuracy in feeding, and the chances all favor an improvement by such exactness.

HOW TO USE THE TABLES.

The first difficulty that must be met is that of determining the live weight of the animal to be fed. The following rule, though by no means accurate, is of some value in determining this: Ordinary cattle, girthing five feet, will weigh from 650 to 750 pounds, according to form and fatness; for each additional inch in girth add 25 pounds, up to six feet, and for each inch after six feet add 50 pounds.

The following table is constructed on the basis given in above rule. It is not, however, claimed that the figures are very close, but I have found them to agree with actual weighing, in a fair proportion of cases, and it is given in this bulletin with the hope that those who have the opportunity will test it and report their results of actual weighing; in this way in time a table can be arranged which will be much better than the present one.

STEERS, OXEN, ETC.

GIRTH.		STORE CATTLE. — QUALITY.		MEDIUM FAT. — QUALITY.	
		Fair.	Good.	Fair.	Good.
ft.	in.	lbs.	lbs.	lbs.	lbs.
5	0	650	700	700	750
5	1	675	725	725	775
5	2	700	750	750	800
5	3	725	775	775	825
5	4	750	800	800	850
5	5	775	825	825	875
5	6	800	850	850	900
5	7	825	875	875	925
5	8	850	900	900	950
5	9	875	925	925	975
5	10	900	950	950	1,000
5	11	925	975	975	1,025
6	0	950	1,000	1,000	1,050
6	1	1,000	1,050	1,050	1,100
6	2	1,050	1,100	1,100	1,150
6	3	1,100	1,150	1,150	1,200
6	4	1,150	1,200	1,200	1,250
6	5	1,200	1,250	1,250	1,300
6	6	1,250	1,300	1,300	1,350
6	7	1,300	1,350	1,350	1,400
6	8	1,350	1,400	1,400	1,450
6	9	1,400	1,450	1,450	1,500
6	10	1,450	1,500	1,500	1,550
6	11	1,500	1,550	1,550	1,600
7	0	1,550	1,600	1,600	1,650
7	1	1,600	1,650	1,650	1,700
7	2	1,650	1,700	1,700	1,750
7	3	1,700	1,750	1,750	1,800
7	4	1,750	1,800	1,800	1,850
7	5	1,800	1,850	1,850	1,900
7	6	1,850	1,900	1,900	1,950

This table will enable those who have had but little experience in weighing to form some idea of the amount of food required. A few examples will serve to illustrate the method of computing a ration: Take a cow giving milk and weighing 900 pounds, turn to Table B, and we see that a cow giving milk and weighing 1,000 pounds requires to be furnished daily with food enough to contain $2\frac{1}{2}$ pounds of digestible albuminoids and $13\frac{1}{2}$ pounds of non-albuminoids, but the case we have taken does not call for so much, as the cow only weighs 900 pounds; the following proportion is capable of giving the exact amount required:

1,000 : 900 :: 2.5 : albuminoids required.

1,000 : 900 :: 13.5 : non-albuminoids required.

The first proportion works out as follows :

$$2.5 \times 900 = 2,250 \div 1,000 = 2.25 \text{ lbs.}$$

The second proportion works out as follows :

$$13.5 \times 900 = 12,150 \div 1,000 = 12.15 \text{ lbs.}$$

That is, a 900-pound cow requires daily, albuminoids, 2.25 pounds; non-albuminoids, 12.15 pounds. How shall we get this amount most economically? Almost every farmer has one or more of the coarse fodders, such as straw, corn fodder, bog meadow hay, also English hay, either herd's-grass, redtop, or mixed hay, and corn meal; many have ensilage, and, on the coast, salt hay. The quantity of English hay that should be fed daily when hay is the standard fodder is from one to one and a half per cent of the live weight of the animal, and with it from one half to two thirds as much of some coarse fodder, like straw or corn fodder, or bog meadow hay; this gives bulk to the ration and is the framework to which the grain ration must be fitted. Let us see what this framework will furnish; to do this turn to Table C and opposite "mixed hay" and "oat straw" we find that 100 pounds of the former will furnish 3.71 pounds of digestible albuminoids and 47.61 pounds non-albuminoids, the oat straw, 1.41 pounds and 43.31 pounds of the same nutrients, consequently the following :

	Albuminoids. lbs.	Non- albuminoids. lbs.
12½ pounds mixed hay . . .	.47	5.95
5 pounds oat straw . . .	.07	2.17

To this add the following grain ration :

3 pounds cottonseed meal . . .	.94	1.26
2 pounds shorts . . .	.27	1.05
2 pounds middlings . . .	.27	1.15
4 pounds corn meal . . .	.16	1.43
	<hr/>	<hr/>
	2.18	13.01
Required as shown by Table B .	2.25	12.15

This gives a ration near enough for all practical purposes. In finding what quantities of the various constituents are needed, it will usually be necessary to make several trials before the right proportion of albuminoids and non-albuminoids is secured, but,

as a general rule, the more coarse fodder used the greater should be the amount of cottonseed, linseed, gluten, or shorts in the grain ration, and the less the amount of corn meal. Now let us see how the hay and straw framework would balance if, as is too often the case, only corn meal is used :

	Albuminoids. lbs.	Non- albuminoids. lbs.
12¼ pounds mixed hay . . . .	.47	5.95
5 pounds oat straw . . . .	.07	2.17
5¾ pounds corn meal . . . .	.44	4.05
	<hr/>	<hr/>
Furnished . . . . .	.98	12.17
Required	2.25	12.15
	<hr/>	<hr/>
Deficiency of albuminoids	1.27	

This ration gives us a sufficient supply of starch, sugar, fat, etc., but less than one half the required amount of albuminoids. If the German experiments are worth anything, they show that it is poor policy to use corn meal alone as a grain ration for English hay and coarse fodders. Once more, let us see what would result if we take a sufficient quantity of corn meal to get the required amount of albuminoids :

	Albuminoids. lbs.	Non- albuminoids. lbs.
12½ pounds hay . . . . .	.47	5.95
5 pounds oat straw . . . . .	.07	2.17
22 pounds corn meal	1.71	15.75
	<hr/>	<hr/>
Furnished	2.25	23.87
Required	2.25	12.15
	<hr/>	<hr/>
Excess of non-nitrogenous matter		11.72

These two rations show very forcibly that either the practice of feeding corn meal alone with hay and straw is a bad one, or the feeding standards are worthless. It will be noticed that the proportions given on page 238 have 1,000 for their first term. This must always be so, because the tables are computed for animals weighing 1,000 pounds ; this being so, the determination

of what a given animal requires, when its weight is known, is very simple.

Rule for determining the digestible matter required by an animal of any weight: Multiply the number of pounds of albuminoids and non-albuminoids, found in Table B, for the desired condition in which the animal is, by the live weight, and move the decimal point three places to the left.

For example, a steer weighs 1,250 pounds, and it is proposed to fatten this animal; what amount of nutrients (that is, of digestible albuminoids and non-albuminoids) is required? In Table B it is seen that "oxen fattening" require daily 3 pounds of albuminoids and 16.5 pounds carbo-hydrates and fat per 1,000 pounds live weight. Applying our rule we get $3 \times 1,250 = 3,750$; removing the decimal three places gives 3.75 pounds of albuminoids. In the same way, $16.5 \times 1,250 = 20,625$; removing the point three places, gives 20.62 pounds of non-albuminoids required. To form a trial ration, take one per cent of live weight of animals in hay, and one per cent in corn fodder, then take about one third of one per cent of one of the following concentrated feeding stuffs, cottonseed, gluten, linseed, or malt sprouts, and one half the quantity of shorts, and make up the ration with corn meal and middlings; a few trials will give a combination coming close enough to the standards.

	Albuminoids.	Non- albuminoids.
	lbs.	lbs.
12½ pounds hay . . . .	.46	5.95
12½ pounds corn stover . .	.27	5.11
4½ pounds cottonseed meal .	1.41	1.90
2¼ pounds shorts . . . .	.30	1.18
5 pounds middlings . . . .	.67	2.88
7 pounds corn meal . . . .	.55	5.01
	<hr/>	<hr/>
	3.66	22.09

There are reasons for believing that this ration is fully as economical for the American farmer as one corresponding exactly with the German standard. Our conditions differ from theirs; corn is our standard grain, it is cheaply produced in the West, and must constitute a considerable portion of our rations here, and hence a little less of albuminoids and more of non-

albuminoids must be used. I am satisfied from the feeding experiments that have been conducted on our college farm, that a considerable variation from the foreign standards may be economical, and that instead of a nutritive ratio of 1 : 5.4 for cows giving milk, we can do better with a ratio of 1 : 6 or 7. This may perhaps be considered a pretty wide variation, but I believe the cheapness with which we can produce starchy foods more than compensates for any loss that may result in quantity or quality of milk from the reduced quantity of albuminoids. The factor of cost of foods has been too much overlooked in American investigations, so that in pointing out the errors of the too common practice of feeding corn meal exclusively, we have tended toward the other extreme.

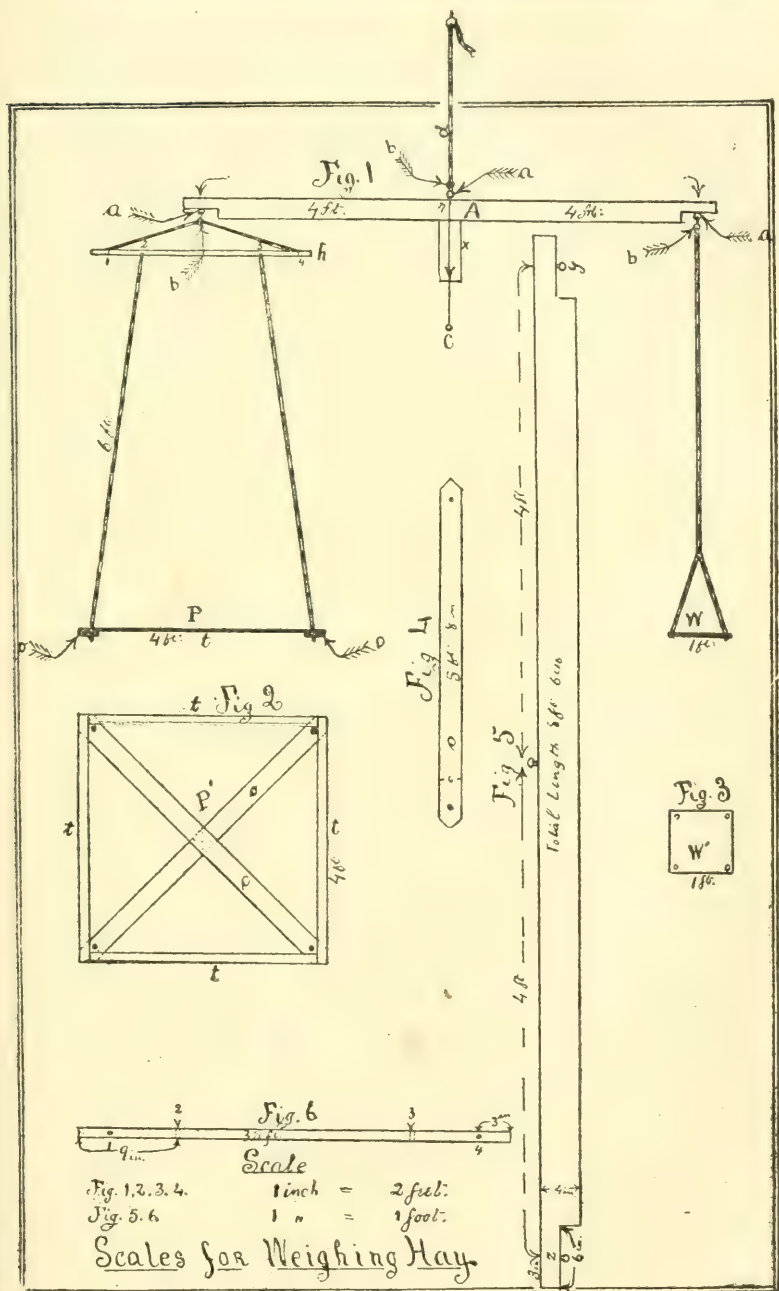
In the following computed rations the grain rations are given in pounds and in the second column are given the quarts and parts of quarts, computed from the following table, which gives the weight of the various grains per half bushel and per quart :

WEIGHT OF GRAINS.

	Weight per ½ bushel.		Per quart.	
	lbs.	oz.	lbs.	oz.
Corn meal.....	23	8	1	7
Cottonseed	25	8	1	9
Shorts.....	11	4	0	11
Middlings.....	18	0	1	2
Ground oats.....	12	0	0	12
Gluten.....	26	0	1	8
Corn and cob meal.....	22	0	1	6
Cracked corn.....	28	0	1	12
Whole oats.....	16	0	1	0

Or, stated in another way :

1 pound corn meal equals . . . .	.700 quarts.
1 pound cottonseed equals . . . .	.625 “
1 pound shorts equals	1.430 “
1 pound middlings equals . . . .	.900 “
1 pound oats equals	1.330 “
1 pound gluten equals . . . .	.617 “
1 pound corn and cob meal equals . .	.730 “
1 pound cracked corn equals . . . .	.570 “
1 pound whole oats equals	1.000 “



It is often difficult for many to weigh hay, corn fodder, straw, etc., for lack of suitable scales; but this is by no means a serious matter, as for less than one dollar outlay of cash and one half day's work, a balance can be made that will weigh very accurately. The cuts on page 243 represent the parts of one that is now in use in our feeding barn. Figure 1 is the complete balance, *A* is the beam, *a, a, a* are the pivots, which consist of "screw eyes," *b, b, b* are common "halter snaps" which hook into these screw eyes. The cords which suspend the weight platform *w* and the spreader *h* pass through two of these snaps while the hook or cord by which the whole is suspended from a beam (*d* in the cut, Fig. 1) is attached to the third snap. The platform *P* is suspended by its four corners by cords passing through the spreader *h* at the parts marked 2 and 3, the spreader being suspended by the cord shown passing through holes at 1 and 4; *c* is a plumb bob suspended from near the top of the beam at *u*, and when balanced should be in the center of the board *x* that is fastened to the center of the beam.

The materials from which to construct such a balance consist of three "screw eyes" and three "halter snaps," which may be had at any hardware store, also forty feet of window-weight cord, and cloth or canvas to cover the hay platform; this is all that need be bought, and the whole cost is only thirty-five cents. The beam is made of a straight piece of inch board, four inches wide and eight feet six inches long; this is shown in Fig. 5. On the under side of this, at each end, a piece is cut out six inches long and two inches wide as shown; on the top side in the exact center one screw eye is inserted; now measure exactly four feet each way from this to the points *y, z*, Fig. 5, and insert a screw eye at each end on the under side; this completes the beam. Next get out two pieces, each one inch thick, four inches wide, and five feet eight inches long, like Fig. 4, and cut the ends as shown; these are the pieces *o, o*, which cross in Fig. 2; cross them at right angles and nail securely; now take four laths (*t, t, t, t*, Fig. 2), cut two of them four feet long, and two three feet nine inches long. The cross piece *o* which is underneath must have two blocks of inch board four inches square nailed to each end, to bring the top up even with the other cross-piece. Now nail the laths on as shown. This is the skeleton of the platform which is

to be covered with heavy cotton cloth, canvas, or oil cloth, tacked to the lath frame ; three-eighths-inch holes are bored in each corner, and through this the window cord will pass. The spreader *h* is shown on a larger scale in Fig. 6. It is made from a rake-stale and is three and one half feet long ; four holes are bored in this ; two (1 and 4 in cut) are three inches from the ends, and the spreader bale-cord passes through these ; the other two are nine inches from the end and are at right angles to the two first mentioned ; through these (2 and 3 in Fig. 6) the cords which suspend the platform are to pass. Fig. 3 is simply a piece of inch board one foot square, with holes in each corner. On this platform the weights are to be put. The cuts show how the cords are arranged ; where the spreader bale passes through the halter snap it must be tied so that it cannot slip through the ring of the snap. It is very important that the distance between the center screw eye and the end ones shall be exactly alike.

When the whole is completed it may be suspended from a beam in the barn floor by a rope, and if it is desirable this rope may pass through a pulley on the beam, and when the balance is not in use it may be drawn up out of the way, being lowered to the floor when needed. I was three hours in building the one we are using, and most farmers, or their boys, or hired men, can build one without having a carpenter to do the work. The cost will then be less than fifty cents. Surely this sum need not prevent any one from knowing what he is feeding. When the whole is complete two bricks will nearly balance the hay platform. It then becomes necessary to have weights from which various combinations may be made. Two bricks may be selected that will weigh four pounds each ; another may be broken, thus getting by a little chipping, a two-pound weight ; also a piece can, with a small amount of work, be made to weigh one pound. With these, even pounds from one to eleven can be made out. I have just carefully tested the balance we are using and find it sensitive to one-half ounce. The grain rations may be weighed on the same balance or they may be measured. The former is more accurate but not quite as convenient.

The following rations have been adapted as far as possible to New Hampshire conditions. They are, however, but a few of

the possible combinations, but will serve as examples in their respective classes :

CLASS I.

RATIONS FOR COWS GIVING MILK (LIVE WEIGHT 900 POUNDS).

Ration 1.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Mixed hay.....	12½	.....	.47	5.95
Oat straw.....	5	.....	.07	2.17
Cottonseed meal.....	3	2	.97	1.26
Shorts.....	2	3	.27	1.05
Middlings.....	2	1¾	.27	1.15
Corn meal.....	4	2¾	.16	1.43
Total daily.....		9½	2.18	13.01
Required.....		.....	2.25	12.15

Ration 2.

Clover hay.....	10	.....	.753	4.36
Corn fodder.....	10	.....	.215	4.13
Corn meal.....	4	2¾	.160	1.43
Gluten.....	3	2	.754	1.85
Shorts.....	2	3	.265	1.05
Total.....		7¾	2.147	12.82

Ration 3.

Herd's-grass hay.....	10	.....	.345	4.87
Bog meadow or salt marsh hay.....	10	.....	.227	4.58
Corn and cob meal.....	5	3½	.356	3.32
Cottonseed.....	3	2	.940	1.26
Shorts.....	2	3	.270	1.05
Total.....		8½	2.140	15.08

Ration 4.

Ensilage (Northern corn).....	50	.....	.740	7.40
Mixed hay with clover.....	10	.....	.485	4.64
Gluten.....	4	2½	1.006	2.47
Total.....			2.231	14.51

Ration 5.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Ensilage (Southern corn).....	40	.....	.53	5.08
Oat straw.....	8	.....	.12	3.46
Corn and cob meal.....	2	1½	.14	1.33
Cottonseed.....	3	2	.94	1.26
Shorts.....	3	4¼	.40	1.58
Total.....		7¾	2.13	12.71

Ration 6.

Ensilage (Northern).....	40	.....	.590	5.92
Corn stover.....	10	.....	.215	4.13
Corn meal.....	2	1½	.156	1.43
Linseed (new process).....	3	.....	.860	1.32
Middlings.....	2½	2¼	.334	1.44
Total....			2.155	14.24

Ration 7.

Ensilage (Sanford corn).....	50	.....	.92	7.46
Clover hay.....	5	.....	.38	2.18
Bean vines.....	5	.....	.25	1.82
Mixed grain*.....	4	3½	.31	2.86
Total.....			1.86	14.32

Ration 8.

Ensilage (Northern).....	50	.....	.74	7.40
Corn fodder.....	6	.....	.13	2.48
Clover hay.....	5	.....	.38	2.18
Corn and cob meal.....	2	1½	.14	1.33
Gluten.....	3	1¾	.76	1.85
Total.....			2.15	15.24

* Corn and cob, 90 pounds; oats, 25 pounds.

Ration 9.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Ensilage (Northern)	50	.....	.74	7.40
Clover	5	.....	.38	2.18
Corn fodder	6	.....	.13	2.45
Mixed grain	4	3½	.31	2.86
Buckwheat	2	1¾	.15	1.33
Total			1.71	16.22

Ration 10.

Herd's-grass and redtop	8	.....	.30	3.80
Clover	5	.....	.38	2.18
Millet hay	6	.....	.28	2.72
Mixed grain	9½	8	.74	6.80
Total			1.70	15.50

FOR COWS WEIGHING 800 POUNDS.

Ration 11.

Herd's-grass	20	.....	.69	9.74
Corn meal	3	2	.23	1.99
Shorts	1	1½	.13	.52
Cottonseed	2	1¼	.63	.84
Total			1.68	13.09

Ration 12.

Mixed hay	10	.....	.37	4.76
Cured oats	10	.....	.48½	4.48
Cottonseed	2	1¼	.63	.84
Shorts	3	4½	.39	1.56
Total			1.87½	11.64

Ration 13.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Mixed hay.....	10	.....	.37	4.76
Cured oats.....	10	.....	.48½	4.48
Cottonseed.....	2	1¼	.63	.84
Shorts.....	2	3	.26	1.04
Corn meal.....	2	1½	.15½	1.43
Total.....			1.90	12.55

Ration 14.

Herd's-grass.....	20	.....	.69	9.74
Cured oats.....	5	.....	.24	2.24
Shorts.....	2	3	.26	1.04
Middlings.....	2	1¾	.27	1.15
Corn meal.....	2	1½	.15½	1.43
Total.....			1.61½	15.60

Rations 7 to 14 inclusive are rations that have been or are now used in our feeding, and although some of them are a pretty wide departure from the standards, yet they appear to be economical. But it must be remembered that the fodders used have not been analyzed, and there is reason to believe that the results in Table C are lower than they should be.

CLASS II.

RATIONS FOR FATTENING CATTLE WEIGHING 900 LBS.

Ration 15.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Mixed hay	12½	.....	.47	5.95
Oat straw	7½	.....	.11	3.25
Corn and cob meal.....	5	3½	.36	3.32
Cottonseed	4	2½	1.25	1.69
Ground oats.....	3	4	.30	1.74
Total furnished.....			2.49	15.95
Total required from Table B.....			2.70	14.90

CATTLE OF 1,000 POUNDS, LIVE WEIGHT.

Ration 16.

Clover hay	10	.....	.75	4.36
Oat straw	5	.....	.07	2.16
Bean vines	5	.....	.25	1.82
Corn and cob meal.....	5	3¾	.36	3.32
Cottonseed meal.....	5	3	1.57	2.11
Ground oats.....	4	5½	.40	2.33
Total.....			3.40	16.10
Required			3.00	16.55

WEIGHING 900 POUNDS.

Ration 17.

Mixed hay	10	.....	.37	4.76
Corn fodder.....	13	.....	.28	5.37
Corn and cob meal	5½	4	.39	3.05
Cottonseed meal	5	3	1.57	2.11
Total			2.61	15.89

WEIGHING 1,000 POUNDS.

Ration 18.

Mixed hay	5	.....	.18	2.38
Ensilage (Northern).....	50	.....	.74	7.40
Cottonseed.....	5	3	1.57	2.11
Corn and cob meal.....	5½	4	.39	3.05
Middlings	1	1	.13	.58
Total.....			3.01	16.12

Ration 19.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Ensilage	50	.....	.74	7.40
Bog meadow or salt marsh hay.....	10	.....	.23	4.58
Gluten	6	3¾	1.51	3.71
Corn meal.....	5	3½	.39	3.58
Total.....			2.87	19.27

CLASS III.

WORKING OXEN, WEIGHT 1,500 POUNDS EACH.

Ration 20.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Mixed hay.....	25	.....	.93	11.90
Corn meal....	5	3½	.39	3.58
Middlings..	5	4½	.67	2.88
Cottonseed	2	1¾	.33	.84
Total.....			2.32	19.20
Required.....			2.40	18.07

Ration 21.

Mixed hay.....	10	.....	.37	4.76
Corn fodder	10	.....	.22	4.14
Ensilage	25	.....	.33	3.18
Corn meal.....	7	5	.54	5.01
Linseed (new process).....	3	.....	.86	1.33
Total.....			2.32	18.42

Ration 22.

Mixed hay with clover.....	20	.....	.97	9.28
Corn fodder	10	.....	.22	4.14
Corn meal.....	8	5½	.57	5.32
Middlings.....	4	3½	.54	2.30
Total.....			2.30	21.04

CLASS IV.

HORSES (HEAVILY WORKED), WEIGHT 1,000 POUNDS.

Ration 23.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Herd's-grass hay.....	20	.....	.69	9.54
Cracked corn.....	4	2¼	.29	2.66
Whole oats.....	12	12	1.19	6.97
Total.....			2.17	19.17
Required.....			2.80	15.40

Ration 24.

Mixed hay.....	20	.....	.74	9.52
Whole oats.....	10	10	.99	5.87
Linseed.....	2	.....	.57	.88
Corn meal.....	2	1½	.14	1.33
Total.....			2.44	17.60

CLASS V.

HORSES (LIGHT WORKED), WEIGHT 1,000 POUNDS.

Ration 25.

	Amount.	Quarts.	Albuminoids.	Non-albuminoids.
	lbs.		lbs.	lbs.
Mixed hay.....	10	.....	.37	4.76
Oats.....	6	6	.60	3.49
Corn meal.....	5	3½	.39	3.58
Shorts.....	2	3	.27	1.05
Total.....			1.63	12.88
Required.....			1.80	12.70

FERTILIZERS.

Probably eighty per cent of all inquiries addressed to the Experiment Station relate to either the use of fertilizer or to stock feeding. Recognizing this fact, a bulletin (No 4) was issued at the beginning of the winter. It will soon be time for the use of fertilizers. Next year's crops must be fed, and they in turn will feed the farm stock of 1889-90; therefore we must, even before the present winter stock feeding ends, commence, indirectly, the next winter's feeding. The first stages, however, do not deal with albuminoids, starch, sugar, oil, etc., but with the elements of which these are made up.

Plants, no less than animals, require food; they create nothing, but simply take the compounds which exist in the air and in the soil, and by unknown chemical processes build up starch, sugar, cellulose, vegetable acids, oils, albuminoids, etc. This power belongs exclusively to plants; animals are unable to transform the elements of water and carbonic acid into starch and glucose, or any other organic compound. If plants must be fed it follows that we must have food upon which to feed them. This we call plant food. To know what plants require we must know what they are made up of. Chemical analysis alone is able to take apart the substance of a plant and tell us what it is composed of. A stalk of corn weighing five pounds, or eighty ounces, was analyzed at the Agricultural College laboratory and found to contain:

	oz.							
Water	65.15
Albuminoids	1.51
Fat47

Carbo-hydrates	{ Cane sugar	4.80
	{ Glucose . . . .	.80
	{ Starch, etc. . . .	2.79
	{ Fiber	3.65
Ash . . . . .		.83
Total		<hr/> 80.00

Water is made up of hydrogen and oxygen. Sugar, glucose, starch, fiber, and oil are made up of carbon, hydrogen, and oxygen, and about eighty-five per cent of the albuminoids is made up of the same three elements, while the remaining fifteen per cent is nitrogen. It has been shown by various experiments that all the carbon of a plant comes from a gas called carbonic acid gas, which exists in the air; the hydrogen and oxygen come chiefly from water.

Nitrogen is believed to come almost wholly from the soil, and the ash also comes wholly from the soil. Thus it appears that the elements from which the 12.51 ounces of starch, sugar, fiber, oil, etc., were constructed came from the air and water; add to this 85 per cent of the albuminoids and we get 13.79 ounces, which with the 65.15 ounces of water gives us 79 ounces out of the 80 ounces total weight of the stalk, which came from the carbonic acid of the air and from the water of the soil; this water also comes from the air. The remaining ounce is made up of .88 of an ounce of ash and .12 of an ounce of nitrogen. With this ounce the study of feeding plants commences, for nature provides the other 79 ounces free. The figures will be more valuable if we apply them to the product of an acre of land rather than to a single stalk.

The yield was twenty tons, or 40,000 pounds, of corn as it was cut for the silo. This amount contained the following:

	Taken from the soil. lbs.	Taken from the air and water. lbs.
Water		32,580
Albuminoids (756 lbs.) { Nitrogen	113	
	{ Carbon, hydrogen, and oxygen	643

Fat		237
Carbo-hydrates {	Cane sugar	2,400
	Glucose	400
	Starch	1,394
	Fiber	1,825
Ash	408	
	521	49,479
		521
		40,000

The soil thus contributed 521 pounds of the total yield. It is evident that the exhaustion of the fertility of the soil comes from that portion of the crop which the plant takes from the soil and not the elements taken from the air, and this question at once arises: In the particular case under consideration was it necessary to supply the whole of the 521 pounds in order to produce the crop? To answer this it will again be necessary to ask the chemist to tell us what the ash of the crop was made up of. There was of nitrogen in the albuminoids, 113 lbs.; phosphoric acid in the ash, 44 lbs.; potash, 120 lbs.; soda, 17 lbs.; lime, 60 lbs.; silica, iron, etc., 150 lbs.; magnesia, 17 lbs.; total, 521 lbs. Commencing at the bottom of the list we may strike out the seventeen pounds of magnesia, for soils, as a rule, contain all of this substance that is needed; there are exceptional cases where the application of magnesia is beneficial. The one hundred and fifty pounds of silica may be set aside at once; plants get this substance in abundance, for as a matter of fact it is not essential to the growth, but seems an accidental constituent of no special use. Of the sixty pounds of lime it may be said that on most soils it is unnecessary to apply it, but even if a soil is deficient in lime we shall more than make good this deficiency in almost any form of fertilizer we may use, for manures and fertilizers all contain a good percentage of lime. The seventeen pounds of soda are of no use to the plant, and even if essential it is abundantly supplied by the soil.

But here our work of setting aside must end. Potash is one of the substances that becomes exhausted in soils that have been cropped for a considerable time. Phosphoric acid is another

substance that must be used to restore fertility to worn soils. Nitrogen is an element about which little is known. It is pretty well understood that plants have the power of getting a considerable portion of their nitrogen from the soil without application from external sources, but this power seems to depend upon the kind of plant to a considerable degree. It is also known that applications of manures containing nitrogen are beneficial, but just how much of the nitrogen a crop can supply itself with, and how much may profitably be applied to the soil, is an open question and likely to remain so for some time.

We may now define the term

PLANT FOOD.

It is any substance that can contribute towards the growth of a plant. Carbonic acid, water, ammonia, phosphoric acid, etc., are examples of plant food. Plant food may be divided into two classes: 1. Those substances, usually abundant, which we will call abundant plant food, including lime, iron, magnesia, silica, soda, sulphur, water, and carbonic acid; 2. Those that become exhausted by long cropping, which we will call deficient plant food. This class includes potash, phosphoric acid, and nitrogen. In special cases soils may be deficient in lime, or iron, or magnesia, and if so then these should be included in the latter class for that particular soil, but in general it is true that only the first three forms are deficient.

Abundant plant food the farmer cares very little about, but deficient plant food must always be the chief factor to be regarded in old agricultural regions. The deficient plant food required by the ensilage crop above mentioned narrows down to 44 pounds of phosphoric acid, 120 pounds of potash, and 113 pounds of nitrogen, in all 277 pounds, or less than seven tenths of one per cent of the entire crop.

Let us take another case, that of the hay crop; 12,000 pounds at time of cutting will take not far from 4,000 pounds, or two tons, when fed out, after shrinking in curing and in the barn. This 4,000 pounds of cured hay will be made up of the following:

	lbs.
Water	500
Albuminoids	304
Carbo-hydrates	2,960
Fat	56
Ash	180
	<hr/>
	4,000

The ash is made up of the following :

	lbs..
Phosphoric acid	17
Potash	77
Soda	2 $\frac{1}{4}$
Lime	20
Silica	53 $\frac{1}{4}$
Magnesia	10 $\frac{1}{2}$
	<hr/>
	180

This crop of hay would be made up of elements taken from the air and from water, 11,775 ; elements taken from the soil, including nitrogen, 225 ; making 12,000 in all.

The deficient plant food, or that which must be attended to by the farmer, amounts to 139 pounds, made up as follows : Nitrogen, 45 pounds ; phosphoric acid, 17 pounds ; potash, 77 pounds. Is it necessary to provide for all the nitrogen, phosphoric acid, and potash, or will the soil furnish a part of these ? It is a well-known fact that all soils fit for tillage are capable of producing small crops continuously. Old fields will produce in the vicinity of half a ton per acre of the so-called June grass, or white top, year after year. Such a crop takes from the soil plant food, and when once the crop has reached the lowest limit in its yield and continues year after year practically the same, the plant food contained in this minimum crop represents the natural capacity of that particular soil to provide nitrogen, phosphoric acid, and potash. Just what this natural capacity amounts to may be illustrated by comparatively definite figures. Lawes and Gilbert, in their famous English experiments, have raised wheat for forty years continuously on their plots, and some have received abso-

lutely no manure in all this time. The following figures show the natural capacity of their soil :

						Bushels.
Wheat	average	for	40	years,	no	manure . . . 14
"	"	32	"	"	"	. . . 13 $\frac{1}{8}$
"	"	7	"	"	"	. . . 15 $\frac{7}{8}$
"	"	3	"	"	"	. . . 18
"	"	4	"	"	"	. . . 25 $\frac{5}{8}$

The first two cases are on the same field, the others represent results on different parts of their estate. The average yield of straw for thirty years was 1,125 pounds.

Taking the experiment plots on our Experiment Station farm, I find that in 1885 we produced on the plots having no manure 47 $\frac{1}{2}$ bushels sound corn, weighing 40 pounds per bushel; 27 $\frac{1}{3}$ bushels soft corn, weighing 34 pounds per bushel; and 3,246 pounds of well-cured fodder. The yield of oats on the same land was 33 $\frac{1}{3}$ bushels and 1,900 pounds of straw, and the past year the yield of hay was 3,600 pounds. These cases are sufficient to show that soils have considerable producing power when left unmanured. This is accounted for in the following way: All soils fit for agricultural purposes contain a considerable amount of plant food; for example, on the plots above mentioned, where wheat had been produced for forty years and no manure had been applied, there was in the first nine inches of the soil 2,000 pounds of nitrogen per acre. Plots adjoining these and cropped the same, but which had received annual dressings, showed much more. One plot which had received fourteen tons of manure annually had in its top nine inches 4,000 pounds of nitrogen. A soil analyzed by the department of agriculture showed 4,957 pounds of nitrogen, 1,567 pounds of phosphoric acid, and 17,429 pounds of potash per acre. If we compare this large quantity with the comparatively small quantity taken up by a good crop, we shall see that there is enough for a great many crops, but plant food may be present in vast quantities and yet not be available to the plant. This brings us to a new classification of plant food, namely, available, that which plant roots can pick up and use for the growth of the plant, and unavailable, or that which is insoluble, so that the roots fail

to gather in any part of it ; and the fact is, that a very large proportion of the 2,000 pounds or more of phosphoric acid, or potash, or nitrogen that is in the soil, is unavailable. But so far as the soil produces crops, even if small, plant food is furnished.

The average supply of plant food taken up by the $13\frac{1}{8}$ bushels of wheat and 1,125 pounds of straw, in Lawes and Gilbert's experiments, would amount to 20 pounds of nitrogen, 17 pounds of potash, and 10 pounds of phosphoric acid. It is evident that this soil is capable of supplying these quantities annually, else the crops would not grow, and this small but necessary allowance comes from the change of unavailable plant food into available by the action of air and water containing carbonic acid, as well as by other more complex influences, which render soluble a limited amount of plant food each year, and this amount is a measure of the natural capacity of any given soil. In raising crops, therefore, we need not be at the expense of supplying all the deficient plant food contained in the crop we raise, but only the excess which the crop contains over and above that which the soil is capable of supplying, year in and year out, indefinitely. It must be remembered, however, that not all the plant food supplied will be received by the crop. Thus only one half (50 per cent) of the nitrogen supplied in the fertilizer is recovered ; the remainder is either lost in the drainage water, or is carried down into the subsoil, or held in the soil. It has been demonstrated that very little, if any, influence is exerted by the nitrogen in chemical fertilizers after the second year, and even the second year this influence is very slight. With potash and phosphoric acid the case is different, the effect of a large application being felt for many years. This is explained by the fact that nitrogen in the form suitable to be used by plants is readily washed out of the soil, while potash and phosphoric acid combine with the soil, and though not immediately available, are gradually made so, and hence in time will be largely recovered.

On this point the conclusions of Lawes and Gilbert are expressed as follows: "While the soil fixes potash and phosphoric acid independent of vegetation, nitric acid is only fixed by the agency of vegetation." This being true, it follows that we must apply a sufficient excess of plant food so that the roots may avail

themselves of a quantity equal to the excess which the full crop contains above the natural capacity of the land. With nitrogen we should carefully look to see just what amount may be used to advantage, for what is not recovered the first year is quite likely to be lost ; with phosphoric acid and potash this is less important, since the excess above that utilized by the plant is retained in the soil and may be had by future crops.

What has thus far been said may be summarized as follows :

1. Plants draw their nourishment from the soil and air.
2. The term plant food is applied to all substances which help to nourish the growing plant.
3. From one to five per cent of the food of the plant comes from the soil, the remainder coming from the atmosphere. That which comes from the soil is the part that must be looked after by the farmer.
4. The plant food taken from the soil I have divided into two kinds, one, abundant, and so far as the farmer is concerned this requires little or no attention ; the other, deficient, or scarce in an available form when soils are worn out by cropping. Deficient plant food amounts to about fifty per cent, on an average, of the total plant food taken from the soil (that is, the total ash plus nitrogen).
5. All soils fit for agricultural purposes contain a considerable amount of the deficient plant food, even when of low crop-producing power. This fact gives rise to a classification of plant food as follows : available plant food, or that which is in such a condition that the roots of the plant can take it up in solution ; and unavailable plant food, or that which the roots cannot make use of.
6. By the action of frost, air, water, carbonic acid, etc., changes are brought about in the soil which annually convert a portion of the unavailable into available plant food, and this portion sustains the natural crop which all soils will produce. This we term the natural capacity of the soil to produce crops.
7. If we desire to produce larger crops, we must supply a sufficient amount of available plant food in manures or fertilizers to feed the increase of vegetation above what the particular soil would produce, but as only a part of the available plant food is

recovered by the crop more must be supplied than the analyses of the increased crop would show.

In connection with the subject of fertilization the terms manures, fertilizers, commercial fertilizers, chemical fertilizers, indirect fertilizers, natural fertilizers, artificial fertilizers, superphosphate, complete and incomplete manures, etc., are used, and as there is often a misunderstanding of the meaning of some of these, I will give a few definitions which may help us in the following pages.

A fertilizer is any substance which furnishes deficient plant food in an available form.

Fertilizers are either natural or artificial ; the former including manures, or the solid and liquid excrement of animals, and green crops plowed in to increase fertility ; the latter (artificial fertilizers) including commercial fertilizers, sometimes called prepared fertilizers, and chemical fertilizers, or those mixed from crude fertilizing chemicals.

A fertilizer is complete, sometimes called general, when it contains nitrogen, phosphoric acid, and potash ; and incomplete, sometimes called special, when furnishing only one or two of these deficient forms of plant food. Mixed animal manures are all complete or general fertilizers. Green crops plowed under are complete. The artificial fertilizers, whether commercial or chemical, are complete or incomplete according as they are mixed from raw materials containing the three forms of plant food above mentioned, or as they lack one or more of these. A fertilizer is said to be indirect when it does not contain deficient plant food, but in some way acts on the soil so as to hasten the change of unavailable plant food in the soil into available, that is, they increase the natural capacity of the soil. Lime, gypsum, salt, etc., so far as they have any action, belong to this class ; others, like ashes, and especially leached ashes, are both direct (furnishing plant food) and indirect.

SOURCES OF PLANT FOOD.

We are now in position to inquire about the sources of plant food, and for our present purposes only the deficient plant food will receive attention, that is, nitrogen, phosphoric acid, and

potash. Farmyard manure is the chief source of plant food in mixed agriculture. It consists of two parts, solid and liquid; the solid portion represents that part of the food which is not digested in the animal system, while the liquid manure contains the waste products of the digested food. Ordinary farmyard manure, from cows, oxen, and growing cattle, has the following average composition; the composition of horse manure, sheep manure, and hog manure is also given:

In 1,000 pounds of manure.	Oxen, cows, etc.	Horse.	Sheep.	Hogs.
Water.....	781.00	713.0	646.0	724.0
Dry matter.....	219.00	287.0	354.0	276.0
Ash.....	40.77	33.0	36.0	26.0
Potash.....	4.80	5.3	6.7	6.0
Lime.....	8.11	2.1	3.3	0.8
Magnesia.....	1.41	1.4	1.8	0.9
Phosphoric acid.....	2.33	2.8	2.3	1.9
Nitrogen.....	4.82	5.8	8.3	4.5

In order that we may be able to know the actual amount of plant food applied to an acre in any given case, I will give the best available figures showing the weight of a cord of manure. Manure from neat cattle and sheep will weigh not far from 8,000 pounds, or four tons, per cord; horse manure, 6,000 pounds, or three tons; while hog manure, as usually found, will probably weigh more than either of those given. As manure is ordinarily drawn in a cart holding forty bushels it will require three loads, without treading, to make a cord. The number of cords and tons may thus be estimated with considerable accuracy. In the following table I have figured the actual plant food per ton, per cord, and per load of one third ton:

DEFICIENT PLANT FOOD IN MANURE.

Manure from		Per ton.	Per cord.	Per load.
		lbs.	lbs.	lbs.
Neat cattle.....	Nitrogen	9.64	38.56	12.85
"	Phosphoric acid	4.66	18.64	6.21
"	Potash	9.60	38.40	12.80
	Total plant food.....	23.90	95.60	31.86
Horses	Nitrogen	11.60	34.80	11.60
"	Phosphoric acid.....	5.60	16.80	5.60
"	Potash	10.60	31.80	10.60
	Total plant food.....	23.80	87.40	27.80
Sheep	Nitrogen.....	16.60	66.40	22.10
"	Phosphoric acid.....	4.60	18.40	6.10
"	Potash	13.40	53.60	17.90
	Total plant food.....	34.60	138.40	46.10
Hogs.....	Nitrogen.....	9.00	36.00	12.00
"	Phosphoric acid.....	3.80	15.20	5.00
"	Potash	12.00	48.00	16.00
	Total plant food.....	24.80	99.20	33.00

The amount of manure produced annually has been estimated as follows for a 1,000-pound ox :

	Nitrogen.	Phosphoric acid.	Potash.
Solid manure 20,000 pounds, containing.....	96.4	46.6	96.0
Liquid manure 10,000 pounds, containing.....	95.5	.....	160.9
Total per year.....	291.9	46.6	256.9

At the prices usually placed upon nitrogen, phosphoric acid, and potash the liquid manure would be worth \$23.95, and the solid \$23.01, a total of \$46.96, provided it could be saved ; but owing to the ease with which urine decomposes, there is great difficulty in saving the nitrogen in the manure, and if we remember that \$16.71 of the value of the total manure, or thirty-five per cent, is in the form of nitrogen in the urine, it at once becomes evident that farmers should take every precaution to save this element.

Those who draw their farmyard manure, liquids and all, and spread them on the land as fast as produced, without doubt handle the urine with the least waste. Next to this the use of a lib-

eral amount of absorbents, cut straw, sawdust, muck, etc., and the presence of hogs on the manure pile, thus keeping it compact and excluding air, is probably the best method.

BONES.

One of the earliest substances used as a fertilizer, aside from manures, was bone. Waste bone chips and horn parings were first used about 1750, and later, say about 1780-1800, bones became a comparatively common manure in England and Scotland for turnips. An average sample of bone will have the following composition per one hundred pounds: Thirty pounds of animal matter containing two and one half pounds of nitrogen, and seventy pounds of ash, containing fifty-eight pounds of phosphate of lime, made up of twenty-four pounds phosphoric acid and thirty-four pounds of lime; the remaining twelve pounds consist of magnesia, carbonate of lime, etc.

It was found by various experiments that the phosphoric acid in the bone was the chief cause of the well-known effect of bone fertilizers. The first great improvement in the use of bone dates with the introduction of a bone mill, by which they were reduced to meal. This was in 1814. The next step was the process suggested by Liebig in 1839, by which bones were dissolved with sulphuric acid; bones thus dissolved, or "cut," with acid were called superphosphate, and differ from the raw bone in having the greater part of the phosphate of lime soluble in water, while very little of the lime phosphate in the raw bone is thus dissolved out when treated with water. The term superphosphate should only be applied to a fertilizer containing soluble phosphoric acid, and is not correctly used when applied to the prepared or commercial fertilizers. In 1843 a new source of phosphoric acid was discovered in Spain. A vein of rock, about seven feet wide, was found there which contained about thirty-four to fifty per cent of phosphoric acid; in 1844 English farmers tried this new source of phosphoric acid and found it a valuable substitute for bone. In the United States bone was first used about 1790. The first bone mill was established in 1830, and superphosphate, or dissolved bone, was first tried in 1851.

One of the most important geological discoveries in the United States was that of the so-called South Carolina rock. This rock

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is found in masses varying from the size of the fist to fragments weighing a hundred pounds or more, and forms a closely packed layer, covering a considerable area near Charleston, S. C., and in other of the coast States. It is intermingled with sharks' teeth and the bones of various animals which have turned to stone. The "Rock" contains from twenty-five to thirty-two per cent of phosphoric acid. This rock was first put on the market in 1868, six tons being the total output. In 1885 437,856 tons were mined, and in 1887, 480,558 tons. The phosphoric acid in these rock phosphates is insoluble, but when ground and treated with sulphuric acid they become converted into superphosphates, or soluble phosphates.

Another valuable source of phosphoric acid is in bone-black. This substance is simply bone charcoal. It is used by sugar refiners, the raw sugars being filtered through it. In this process the impurities of the sugar are held by the bone-black and from the syrup the granulated sugar is crystallized. After a time the bone-black loses its power of removing the impurities and is then sold to fertilizer manufacturers, for it contains the phosphate of lime originally in the bone. Crude bone-black contains about thirty-four per cent of insoluble phosphoric acid.

At the present time there is a comparatively new source of phosphoric acid in the so-called Thomas-Gilchrist slag. This comes from the manufacture of iron or steel from certain ores of iron which contain phosphoric acid. The slag has about twenty per cent of phosphoric acid in a form not soluble in water.

POTASH.

Until 1868 the chief source of potash was wood ashes. It is true that nitrate of potash, or saltpetre, has been used from a very early time, records dating back to 1625, but it was more for the nitrogen which this substance contained than for the potash; hence, we may regard the discovery and use of the "German Potash Salts" as the first rival of ashes. Unleached wood ashes vary very much in their composition, containing from two and five tenths to eight and one half per cent of actual potash. In "Canada" ashes* the average is not far from six per cent of actual potash (K_2O), while leached ashes may contain any-

* Massachusetts Experiment Station Report, 1887, average of seventy-one analyses.

where from one half to two and one half per cent, according to the thoroughness of leaching.

GERMAN POTASH SALTS.

About 1850 an effort was made to open a salt mine at Stassfurt, in Saxony. Salt was reached in 1857 at a depth of over one thousand feet. In sinking the shaft, beds of potash and magnesia salts were passed through; in 1861 a factory was established to purify these salts and put them in commercial form. The first of these crude chemicals were brought to the United States in 1868. There are several forms of these salts: the muriate, sulphate, also what is called kainit, krugit, etc.

NITROGEN.

Nitrogen is a costly element of plant food. Its use should be well looked to; when we remember that every pound of nitrogen will cost us not far from twenty cents, while a pound of phosphoric acid (P_2O_5) costs less than eight, and of potash (K_2O) about five cents, it is evident that we cannot afford to be so thoughtless about the nitrogen as we often are about the other two. As has been already said, nitrate of potash was one of the earliest fertilizers used; it contains about thirteen per cent of actual nitrogen. The high value of nitrate of potash as a constituent in the manufacture of gunpowder prevents the use of this source of nitrogen in agriculture, but about 1820 a substitute was found in the so-called Chili saltpetre, or nitrate of soda. This source of nitrogen was not at first popular, the first ship-load, going begging for a customer in England, was sent off to this country; at present, however, Chili saltpetre is regarded as a valuable source of nitrogen. It is dug from the ground in South America, where it has accumulated in past ages.

In 1836 "gas liquor" was first used in England. This is the water in which illuminating gas is washed, and is found to contain ammonia gas (commonly called hartshorn). Ammonia gas is made up of nitrogen and hydrogen, fourteen parts of the former to three of the latter; the results from the use of this liquor compared favorably with those from saltpetre, but the bulk was too great. Later, by the use of sulphuric acid, the ammonia gas

was saved in the form of sulphate of ammonia, which to-day forms one of the best sources of nitrogen.

English farmers long ago learned the value of dried blood, and for a time English speculators bought both dried blood and bones in this country and shipped them to be used on English fields ; but as the demand for plant food became greater at home, this trade ceased, and to-day this valuable form of nitrogenous fertilizer is extensively used. Meat and fish scraps are also largely used.

These are among the principal sources of the three substances which I have classed as deficient plant food, and in the following table is given the average per cent of plant food which they contain.

A word of explanation as to what is meant by phosphoric acid, potash, and nitrogen :

By phosphoric acid is meant a white powder which is made up of the metal phosphorus and the gas oxygen. Chemists express this as P_2O_5 , which means two parts by volume of phosphorus and five parts of oxygen.

By potash is meant a white substance made up of the metal potassium and the gas oxygen, expressed by K_2O , or two parts by volume of potassium and one of oxygen.

By nitrogen is meant the gas which is abundant in its free form in the air. Chemists indicate this by the letter N.

The term ammonia is used and often misunderstood. It means one part by volume of nitrogen and three parts of the gas hydrogen, or in chemical work written NH_3 . It must be remembered that when a fertilizer is said to contain a certain amount of ammonia, that it really means it contains nitrogen, but that the amount of nitrogen is only $\frac{1}{17}$ as much as the amount of ammonia. To illustrate this explanation take sulphate of ammonia in the following table. It contains on an average twenty per cent of nitrogen, that is, one hundred pounds of the sulphate of ammonia as bought has twenty pounds of the gas nitrogen (N), and it is this twenty pounds that the plant demands, but we might say that the same sulphate of ammonia had twenty-four and one third per cent of ammonia (NH_3) ; hence, if manufacturers print the per cent of ammonia in their goods, the farmer must remember that only fourteen seventeenths, or eighty-two per cent, of this is plant food, that is, nitrogen.

If a fertilizing material contains fifty per cent of potash, it means that each one hundred pounds has in it fifty pounds of actual potash (K_2O), or a bone meal that contains twenty-four per cent of phosphoric acid has in every hundred weight twenty-four pounds of phosphoric acid (P_2O_5). But fertilizers and fertilizing chemicals have their phosphoric acid in three forms, one soluble, that is, it will dissolve in water; another reverted, that is, not soluble in water, but soluble in ammonium citrate solution, this solution having been agreed upon by chemists, and it is assumed that the roots of plants have the power of taking up phosphoric acid in this form; hence, it is common to speak of the available phosphoric acid in a fertilizer, meaning the soluble and the reverted taken together. Insoluble phosphoric acid is that which is neither soluble in water nor ammonium citrate.

The following table shows the sources of deficient plant food, the per cent of each constituent, the cost per hundred weight delivered in Central New Hampshire, and weight per measured half-bushel:

Kind of plant food furnished.		Per cent of plant food.	Cost per 100 lbs.	Weight per half-bushel in lbs.
Phosphoric acid. (P_2O_5).	Insoluble.	Raw bone.....	24 *	\$1.75
		Bone-black.....	28	1.30
		South Carolina rock.....	28	1.25
		Bone ash.....	35	52
	Soluble.	Dissolved S. C. rock.....	16	1.25
		Dissolved bone-black.....	16	1.50
		Dissolved bone.....	16	1.75
	Part reverted (6 per cent).			
	Part insoluble (15 per cent).	Thomas-Gilchrist slag.....	21	1.25
		Wood ashes.....	6	.50
Potash (K_2O).	Muriate of potash.....	50	2.40	23
		Sulphate of potash.....	22	34
		Sulphate of potash (high grade).....	50	3.50
	Kainit.....	12	.75	40
	Krugit.....	8	.75	39
	Dried blood.....	12	2.00	39
	Fish waste.....	7		19
Nitrogen (N).	Bone.....	2.5†	1.75	
		Nitrate of soda.....	15	3.00
		Nitrate of potash.....	13	44
		Sulphate of ammonia.....	20	5.00

* And two and one half per cent of oxygen.

† And twenty-four per cent of phosphoric acid.

USE OF FERTILIZERS.

Farmers use fertilizers in the same way that manufacturers use their raw materials, and the same business methods and rules apply in each case. Nitrogen, phosphoric acid, and potash, or the crude materials containing these, are the farmer's raw materials, and from them he hopes to manufacture corn, oats, potatoes, hay, fruit, etc., through the agency of the soil, which is his machine. The following points should be duly considered in this manufacturing process :

1. The amount of material required by various crops ;
2. The utilization of all waste products, such as animal manures, ashes, etc., which are produced on the farm ;
3. The purchase of the most economical fertilizing materials as an aid to these home-produced fertilizers ;
4. The use of all fertilizers in such a way as to get the most profitable returns in as short a time as possible.

In all of this the final result must be determined in dollars and cents, for this is the true business standard in farming as in manufacturing.

The following table shows the plant food taken from the soil by various farm crops :

DEFICIENT PLANT FOOD REMOVED BY VARIOUS CROPS.

	Weight as harvested.	Weight after shrinkage.	Nitrogen.	Phosphoric acid.	Potash.
	lbs.	lbs.	lbs.	lbs.	lbs.
Corn... { Sound, 97 bushels..... }	4,390	3,512	20.55	16.27	71.07
{ Soft, 15 bushels..... }					
{ Fodder..... }	5,352	4,281	56.19	19.32	11.59
Total			76.74	35.59	82.66
Oats... { Grain, 47½ bushels..... }	1,520	1,292	24.82	7.11	5.43
{ Straw..... }	5,267	4,740	18.96	8.53	45.98
Total			43.78	15.64	51.41
Hay	6,202	4,961	60.30	21.09	95.51
Potatoes, 200 bushels.....	12,000		38.40	21.60	67.20
Clover, 1½ tons.....		3,000	64.32	16.80	58.50
Wheat.. { Grain, 15 bushels..... }		930	19.18	7.63	5.11
{ Straw, 1 ton..... }		2,000	6.40	4.60	9.80
Total			25.58	12.23	14.91
Beans.. { Beans, 20 bushels..... }		1,240	50.59	14.38	14.88
{ Vines..... }		1,500	24.48	6.15	38.85
Total			75.07	20.53	53.73
Ensilage, 20 tons.....			113.00	44.00	120.00

USE OF FARMYARD MANURE.

The general character of farmyard manure has been alluded to in Bulletin 5, page 262. It is not a concentrated fertilizer, but rather the reverse, 1,562 pounds of water, 9.6 pounds of potash, $4\frac{2}{3}$ pounds of phosphoric acid, 9.6 pounds of nitrogen, and 414 pounds of undigested matter, sand, iron, lime, magnesia, etc., making up a ton, and the total amount of deficient plant food amounting to 23.9 pounds. It will also be seen, on page 263, that the amount per cord is 95.6 pounds; or if 7 cords are applied per acre, the figures amount to 66.9 pounds. It must not be supposed, however, that all this is available, for a part of the nitrogen is in the undigested food and must decompose in the soil, while a part of the phosphoric acid (about one half of it) is insoluble. From the analyses of chemical fertilizers, it will be seen that there is actually more available plant food in a hundred pounds of corn fertilizer than there is in a ton of manure. As has

been already pointed out, a large part of the value of the manure of an animal is in the liquid manure in the form of urea, a substance containing nitrogen, and which by fermentation changes into ammonia and is lost, or may be if no precautions are taken. This being true, the safest way would seem to be to get the manure, both solid and liquid, into the soil before fermentation takes place. This may be accomplished by drawing and spreading the manure as fast as it accumulates, whether in summer or in winter. In many places this is practiced, but the deep snows of a New Hampshire winter prevent this generally. It is also true that on steep hillsides the plant food would be washed away to a certain extent, but on level land or land of moderate slope I should never hesitate to spread manure at any time when I could conveniently draw it to the field, whether in the fall, winter, spring, or summer.

It is sometimes urged that manure loses nitrogen by exposure to wind and snow, but if manure is drawn out before fermentation commences, there is little or no ammonia in it, and as the nitrogen of manure, to be volatile, must be in the form of ammonia, the loss from this source must be very small indeed. Manure spread on the surface in summer or early fall should be harrowed in, for the reason that if left on the surface it dries in hard lumps, and is hard to break up and mix with the soil. Manure applied in the late fall, before or after the freezing of the soil, is probably in the best position possible; and I am satisfied, not only from general observation and the experience of the most observing farmers, but from experiments in which the exact weight of products has been determined, that if all the farmyard manure could be applied in November instead of April the average yield would be increased by more than ten per cent from this change alone. The explanation of this is to be found in the even distribution of the plant food in the surface soil. The fall rains and the melting snow soften the manure and dissolve the available plant food, washing it into the soil, where it is left in the best condition possible for the young plant.

The following experiments made on the Experiment Station farm show the effects of manure applied in this way. Three acres of land were set apart for the work; the strips were fifty-six

rods long and three rods wide. Each acre was divided into four sections, and each section consisted of three rows of corn, space being left between. These spaces were planted, but not included in the experiment. The three rows had eight hundred hills, the hills and rows being three feet two inches apart; this would give three fourths of an acre in each set of four sections, which in the diagram on the following page shows the field. The fifth acre had six cords of manure plowed in in the fall, the sixth acre had six cords spread on the surface in the fall, and the seventh acre had six cords spread on the surface in the spring. The yield was as follows: *

	Sound corn.	Soft corn.	Fodder.
	lbs.	lbs.	lbs.
Fifth acre plowed in in fall	2,690	935	5,555
Sixth acre on surface in fall	3,070	754	6,066
Seventh acre on surface in spring	1,690	1,084	5,271

The manure was in all respects the same, so far as it is possible to get manure of like quality.

If manure is to be stored and all applied at one time, either in the spring or fall, it should be kept under cover, the heaps well leveled down, and hogs kept on it; in this way it is packed solid and the air largely excluded; this prevents fermentation to a large extent, and thus preserves the nitrogen. It is well known that sheep manure, so long as it lays in the pen, is packed so solid that no fermentation takes place, but as soon as thrown into a pile it quickly heats and gives off strong gases; this is caused by the access of air, and the same is true of all manures. A liberal use of absorbents is always to be recommended, and when available there is nothing better than sawdust; not that the sawdust in itself contains much that is useful, but it readily takes up the liquid and makes the manure easy to spread. Muck, when well dried, is a valuable absorbent. Straw and meadow hay are much used, but unless of very poor quality they can be put to better use.

* These yields are only for three fourths of an acre.

WEST. $8\frac{1}{2}$ RODS.

	5TH ACRE.				6TH ACRE.				7TH ACRE.			
Section 1.												
Section 2.												
Section 3.												
Section 4.												
Section 1.												
Section 2.												
Section 3.												
Section 4.												
Section 1.												
Section 2.												
Section 3.												
Section 4.												

SOUTH. 56 RODS.

NORTH.

EAST.

As a general rule, manure should not be plowed in deeply ; more manure is lost by burying too deeply than by exposure to the air, and if it were possible to mix evenly the whole of the manure with the first three inches of surface soil, it would be in the best possible position for the ordinary crops. Every rain tends to carry the nitrogen, phosphoric acid, and potash down into the soil, and the action of the air near the surface tends to render available the unavailable parts of the manure ; but if deeply plowed in, this decomposition is slow and often unsatisfactory.

FERTILIZERS OTHER THAN FARMYARD MANURES.

But after all the manure is used, there is in most cases a deficiency to be made up ; this deficiency is caused by the sale of farm products. The following table shows the nitrogen, phosphoric acid, and potash carried away in one thousand pounds of the substance mentioned :

1,000 pounds of	Nitrogen.	Phosphoric acid.	Potash.
Pats.....	20.0	5.33	4.25
Potatoes.....	3.4	1.80	5.60
Hay.....	12.8	4.25	19.30
Oat straw.....	4.0	1.80	9.70
Beans.....	41.0	11.60	12.00
Corn.....	16.0	5.50	3.30
Milk.....	5.6	1.75	2.14
Butter.....	1.0	.75	.50
Fat oxen.....	23.2	16.50	1.84
Live hogs.....	17.5	6.90	1.50
Wool.....	73.0	1.00	40.00
Live sheep.....	19.6	11.39	1.60

There are two ways of making up this deficiency, — by the purchase of feeding stuffs, thereby increasing the number of animals that may be kept and thus adding to the manure, and by the purchase of fertilizers, or fertilizing materials. Both methods are to be recommended, but this bulletin has for its object the consideration of the latter method, namely, the use of fertilizing materials.

So far as the use of prepared or commercial fertilizers is concerned, I have only to say that my experience and that of farmers in various parts of the State has gone far towards demonstrating that more economical results may be obtained by the purchase of crude fertilizing waste products and chemicals than by the use of the many prepared goods that are to be bought. In a considerable number of experiments it has been found that the increase of corn and fodder for a dollar's worth of fertilizer applied has been valued at about \$1.50 to \$2.00 with prepared goods, while mixtures of bone-black, muriate of potash, and sulphate of ammonia have given from \$2.00 to \$3.00 per dollar invested.

The results from the use of all fertilizers are more striking on the hill farms and on soils of low natural capacity than they are on the river lands which produce larger natural crops; but as the experiments from which the foregoing averages are drawn have been upon both kinds of soil, I think they represent the relative efficiency fairly. How is this difference accounted for? I answer in two ways: Because the crude chemicals contain the plant food in readily available form. Nitrogen in either sulphate of ammonia or nitrate of soda is soluble and therefore more likely to be readily taken up by the growing crops; but in prepared fertilizers part — and often a large part — of the nitrogen is in organic matter and may not be available. The potash of the easily soluble muriate is ready for the plant at once. There seems to be some reason for believing that the phosphoric acid of bone-black is more effective than that in South Carolina rock; at least we are sure of our materials if bought in separate form, while we may not be so certain about the mixed goods. But the secret of the increased efficiency of chemicals is to be looked for in the ratio in which they are mixed. It is assumed by most fertilizer manufacturers that a complete fertilizer should contain twelve per cent of phosphoric acid, four per cent of potash, and two per cent of nitrogen; but if we look at the composition of the ash of plants we find a different ratio.

In the table given on page 274 are to be found the data for determining the relative amount of potash and phosphoric acid which various crops remove from the soil. These results are represented in the following cut; the lower part of

the vertical lines, or the solid black parts, show the potash ; the upper part, or that simply outlined, represents phosphoric acid ; each quarter inch in height represents twelve pounds. The table of ratios shows in each case the number of pounds of potash taken up by the crop for every pound of phosphoric acid. For example, take the ensilage crop already described. It took from the soil forty-four pounds of phosphoric acid and one hundred and twenty pounds of potash ; the ratio is, 1 of P_2O_5 to $2\frac{3}{4}$ of potash (K_2O) ; with the hay crop the ratio is 1 : $4\frac{1}{2}$.

RATIO OF PHOSPHORIC ACID TO POTASH IN THE ASH OF PLANTS.

								P_2O_5	K_2O
Ensilage	.	.	.	.	.	.	.	1	: 2.7
Hay	.	.	.	.	.	.	.	1	: 4.5
Corn	.	.	.	.	.	.	.	1	: 2.3
Oats	.	.	.	.	.	.	.	1	: 3.3
Potatoes	.	.	.	.	.	.	.	1	: 3.1
Clover	.	.	.	.	.	.	.	1	: 3.5
Wheat	.	.	.	.	.	.	.	1	: 1.2
Beans	.	.	.	.	.	.	.	1	: 2.6

IN MANURES.


From neat cattle	.	.	.	.	.	.	.	1	: 2.
From horses	.	.	.	.	.	.	.	1	: 1.9
From sheep	.	.	.	.	.	.	.	1	: 2.9
From swine	.	.	.	.	.	.	.	1	: 3.1
In prepared fertilizers	.	.	.	.	.	.	.	3	: 1.
Ashes	.	.	.	.	.	.	.	1	: 3.

It is seen at a glance that the plant requires on an average three times as much potash as phosphoric acid, while the prepared fertilizers, as we buy them, give us three times as much phosphoric acid as potash, just reversing the ratio.

CUT SHOWING RATIO OF PHOSPHORIC ACID TO POTASH.

SCALE.

One inch represents forty-eight pounds.

The black line  potash.The light lines  phosphoric acid.Ratio of P_2O_5
to K_2O .

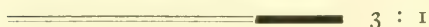
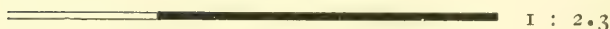
Manure, 5,000 lbs.



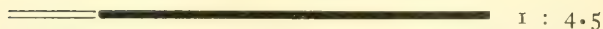
Chemical fertilizer, 500 lbs.



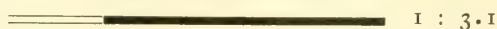
Prepared fertilizer, 500 lbs.

Corn, $47\frac{1}{2}$ bushels.Oats, $47\frac{1}{2}$ bushels.

Hay, 3 tons.



Potatoes, 200 bushels.

Clover, $1\frac{1}{2}$ tons.

Wheat, 15 bushels.



Beans, 20 bushels.




Ensilage, 20 tons per acre.



Let us see what the effect of this is. Suppose, for example, that for a crop of corn we wish to furnish the soil with forty pounds of potash (K_2O); it will require one thousand pounds of a prepared fertilizer to give this amount. Now ordinary crops would have thirteen pounds of phosphoric acid (P_2O_5) to go with forty of potash, but in our one thousand pounds of fertilizer which we must apply to get forty pounds of potash, there will be one hundred and twenty pounds of phosphoric acid, — over nine times as much as is necessary; or, suppose we apply enough fertilizer to provide the necessary phosphoric acid it would require but one hundred pounds, but in this amount we would only have four pounds of potash, or one tenth of the required amount. The average ratio of these two forms of plant food in well-preserved manure is one of P_2O_5 to two and one half of K_2O , and in ashes, which represent the ash part of trees, we find one of phosphoric acid to three of potash. Chemically, then, we find no support for the rule so widely adopted for compounding the so-called commercial fertilizers.

I am well aware that another factor comes in here, namely, the capacity of the soil for providing plant food. It might be true, and doubtless is in some, perhaps many, localities, that the soils yearly liberate more potash than phosphoric acid, and there are cases where phosphoric acid alone will give bountiful crops, thus showing that in such soils there is enough available potash; but in many cases it has been assumed that phosphoric acid is the regulating substance, when experiments carefully conducted have proven that it is potash. This leads us to inquire whether there is any method by which we may satisfy ourselves of the requirements of our particular soils. The answer must be, field experiments, and the method must be based upon the use of fertilizing materials which contain the three forms of deficient plant food in separate substances, so that we may test them singly and in a variety of combinations, having nitrogen, phosphoric acid, and potash in varying proportions. These tests, when well conducted and when properly duplicated and made by the side of plots having no fertilizer, are capable of giving a great deal of practical information.

PLAN OF EXPERIMENT FIELD.

PLOTS.	FOURTH ACRE.				THIRD ACRE.	SECOND ACRE.	FIRST ACRE.
	26				<p>13 loads manure plowed in. 9 loads harrowed in. No fertilizer in hill. Value, \$33.</p> <p>No manure. 346 lbs. bone-black. 150 lbs. muriate of potash. 56 lbs. sulphate of ammonia. Cost, \$11. 352 lbs. sown broadcast, and 200 lbs. put in hill. 3 applications.</p>		16 rods.
	25						
	24						
	23						
	22						
	21						
	20						
	19						
	18						
	17						
	16						
	15						
				10 rods.	10 rods.	10 rods.	10 rods.

15 rods

These tests have been carried on here on the station farm for four years, on a series of plots twenty-four in number. The plan of experiment has been as follows: Plots of 1-20 of an acre were laid out according to the plan on page 279. This was done in 1885, and each plot was separated from the adjoining ones by a vacant space three feet wide. Each plot except those marked nothing has received \$8 worth of fertilizer yearly per acre for three years, 1885, 1886, and 1887, or \$24 in all. The table on page 281 shows the actual amount of each material used on each plot. The crops were corn, oats, and hay. With the corn the fertilizer was applied two thirds broadcast and one third in the hill and the whole broadcast on the oats.

The table is computed to yields per acre, and as the second year's crop of corn was not recorded, I have assumed that it was the same as the first. That part of the table showing the value of crops is on the basis of corn at sixty cents per eighty pounds as husked, and soft corn ten cents per bushel of thirty-four pounds; fodder, \$6 per ton; oats, 50 cents per bushel; straw, \$6 per ton; and hay, \$10 per ton. The column marked "Value of crops for four years," adds the first year's crop in twice, which is not far from right; this is done to facilitate comparison with the third and fourth acres given later in this bulletin. The columns showing composition of fertilizers give the per cent of nitrogen, phosphoric acid, and potash in each mixture. In plot twenty-two, sulphate of potash was used the second year and the percentage is figured on the three applications; this is not strictly accurate, for the first crop had no potash at all, and the other crops were greatly benefited by the application, as the yield will readily show. Had potash been added the first year, the crop would have been considerably larger.

At the bottom of the page the average of the plots with no fertilizer is given. Plots two, three, eleven, and twelve only received fertilizers the first two years, consequently they cannot be compared with the others except for the first year's corn crop. Plot twenty-two had two applications of bone, one in 1885, the other in 1887, and in 1886 an application of sulphate of potash was made.

No. of plot.	Dissolved bone-black.	Muriate of potash.	Sulphate of ammonia.	Ground bone.	Undissolved bone-black.	Krugit.	Dissolved S. C. rock.	Undissolved S. C. rock.	Ashes.	Bay State superphosphate.	Buffalo fertilizer.	Stockbridge corn.	Bowler hill and drill.	YIELD PER ACRE.				VALUE OF CROPS.				Total value of four years' crop, 2d year estimated.	Composition of fertilizer used, per ct.		No. of plot.					
														1885.				1887.		1888.			Corn.	Oats.		Hay.	Total of three crops.	Nitrogen.	Phosphoric acid.	
														Sound corn.	Soft corn.	Fodder.	Oats.	Straw.	Hay.	bu.	lbs.									bu.
1	9	5													96 1/2	39 1/4	75 9/16	42 1/2	3300	3000	55-64	31-15	15-00	101-79	157-43	7	.....	32	1
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85	27	59 8/16	44 1/2	2900	2650	45-54	.....	.....	.....	.....	3	12	2	2
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76	27 3/4	41 4/16	44 1/2	3000	3550	37-98	.....	.....	.....	.....	3	12	2	3
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	101 3/4	21	52 9/16	53	3400	3050	48-40	36-70	15-25	100-44	148-93	3	12	6	4
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85	18 3/4	42 5/16	45	3100	3800	40-12	31-80	19-00	90-92	131-04	3	12	2	5
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51 1/2	28	35 1/16	41	3000	3600	.....	.....	.....	.....	.....	0	0	0	6
7	17	3/4	4		1 1/2										80 1/2	28 1/2	46 0/16	45	3000	3000	40-86	33-30	15-00	89-10	129-90	3	12	2	7	
8	13	9	5												101 1/2	38 1/2	62 1/16	55	4000	4000	52-93	38-50	20-00	111-43	164-36	.....	9	30 1/2	8
9	10	13	4 1/2	2 1/2											16	23 1/4	40 1/16	43	3300	2500	14-34	30-15	12-50	56-99	71-33	5 1/2	16	.....	9
10	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	95	35 3/4	60 9/16	46	3700	3900	50-35	34-10	19-50	103-95	138-95	2 1/2	9 1/4	11 1/4	10
11	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86 3/4	23 3/4	39 1/16	39	2600	3070	38-31	.....	.....	.....	.....	3	12	2	11
12	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71 1/2	20	39 1/16	37	3200	3700	35-18	.....	.....	.....	.....	3	12	2	12
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	105 1/2	34	52 5/16	40	3600	5270	50-79	30-86	26-35	107-94	158-73	.....	2	8	15
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60	31	38 7/16	34 1/2	2600	4050	.....	.....	.....	.....	.....	0	0	0	16
15	78 3/4	52 1/2	62 5/16	38	3000	5680	47-60	30-70	28-25	106-55	154-15	8	17
16	33	52	47 5/16	38	3700	4700	29-35	30-10	23-50	82-94	112-29	50	18
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	25	34	3100	3550	.....	.....	.....	.....	.....	.....	0	0	0	19
18	41 1/2	29	26 3/16	41	3400	3600	23-22	29-92	15-00	88-14	91-36	16	20
19	65	30	4000	45	3140	3950	34-50	31-92	19-75	86-15	120-95	34	21
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	27	4000	43	3100	4950	34-20	30-86	24-75	89-75	123-05	2	19	10	22
21	40 1/2	30	3125	33	3200	3550	24-47	26-10	17-75	68-32	92-79	34	23
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51 1/2	25	3375	27	3100	3200	.....	.....	.....	.....	.....	0	0	0	24
23	45 1/2	25 1/2	3500	36	3700	3250	26-63	29-10	16-25	72-00	98-05	15	25
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	117	32 1/2	7500	40	4200	3950	60-83	32-60	19-75	113-18	174-01	2 1/2	5 3/4	25	26

* Nothing. Average of nothing plots..... 47 1/2 27 1/2 32 4/5 33 1/5 20 00 3 600 26-70 25-37 18-00 70-07 96-77 0 0 0

This table may be studied from different standpoints; for the present I shall try to show what it teaches concerning the best combination of fertilizing materials for the crops and soil involved in this experiment. The object of this work was to find a ration, if I may use the term, suited to the wants of the growing plant on this soil, and so far as practicable I believe that the methods adopted in determining rations for animals should be applied in feeding plants. With this in view, I have applied equal values of fertilizers in which the constituents have varied; now, from the yields obtained it is possible to pick out the best, and thus find the most profitable combination.

The feeding of plants is not essentially different from the feeding of animals; there are more factors of uncertainty in the former, but to the practical farmer it is a question of dollars received for dollars invested in each case; hence the use of fertilizers should be studied from this point of view. The German method of adapting food to animal requirements is to feed a great variety of foods in different combinations, and note the results. After a time the superiority of certain rations becomes evident, and these are further tested, the foods being analyzed, their digestibility determined, and from the results the amount of each digestible nutrient consumed daily is determined. Applying this method to plants, we should feed the plants on different plots with a ration made up of various fertilizing materials, the available plant food being in different proportions; then from the yield we may pick out the most profitable combination and determine its composition; this is the true way to obtain a rational standard for fertilizers.

The great difference between adapting food to plants and to animals is this: When it has once been demonstrated that an animal under given conditions requires certain food for the best results, it is reasonably certain that the results may be applied in one State or country as well as in another, due regard being paid to the cost of the food; but if I demonstrate that a certain combination in which potash is largely contained is best for a crop of corn in a given locality, it is not certain that on other soils having different geological characteristics the same results would follow. The natural resources of the soil, its ability to provide potash

in one case and phosphoric acid in another, etc., constitute a factor of uncertainty in feeding plants which is not met with in animal nutrition, and it is this uncertainty which makes it necessary to make local experiments with fertilizers. I do not mean that results obtained in one place are of no value in another, for this is not the case. There are certain classes of soil which are so similar in their origin and composition that a very certain prediction may be made concerning their requirements, and it is true that the great bulk of the hill lands, or "drift soils," of New Hampshire respond similarly to fertilizers of practically the same composition; but I do mean that there are exceptions, and local tests can point them out; hence the necessity for experiments on soils having unlike characteristics.

VALUE OF CROPS FROM PLOT EXPERIMENTS.

No. of plot.	1885. Corn.	No. of plot.	1887. Oats.	No. of plot.	1888. Hay.	No. of plot.	Total of three lots.	Relative position.
26	\$60.83	8	\$38.50	17	\$28.25	26	\$113.18	1
1	55.64	4	36.70	15	26.35	8	111.43	2
8	52.93	10	34.10	22	24.75	15	107.94	3
15	50.79	7	33.30	18	23.50	17	106.55	4
10	50.35	26	32.60	8	20.00	10	103.95	5
4	48.49	21	31.92	21	19.75	1	101.79	6
17	47.60	5	31.80	26	19.75	4	100.44	7
2	45.54	1	31.15	10	19.50	5	90.92	8
7	40.80	15	30.80	5	19.00	22	89.75	9
5	40.12	22	30.80	23	17.75	7	89.10	10
11	38.31	17	30.70	9	12.50	21	86.15	11
3	37.98	.....	.....	.....	.....	.....	.....	12
12	35.18	.....	.....	.....	.....	.....	.....	13
21	34.50	.....	.....	.....	.....	.....	.....	14
22	34.20	.....	.....	.....	.....	.....	.....	15
18	29.35	9	30.15	4	15.25	18	82.94	16
25	26.25	18	30.10	1	15.00	25	72.00	17
23	24.47	25	29.92	7	15.00	23	68.32	18
20	23.22	20	29.10	20	15.00	20	68.14	19
9	14.34	23	26.10	9	12.50	9	56.99	20
Plots with no fertilizers.	26.70	.....	25.37	.....	18.00	.....	70.07	.....

The results tabulated on page 281 I have rearranged as above, commencing with the greatest value of crops for each year and following down to the lowest; also the total for three years, the last column showing the position as regards the best yield.

The omission of oats and hay for 12th, 13th, 14th, and 15th places is occasioned by the fact that no fertilizer was applied to plots 23, 11, and 12, after the second year.

POTASH COMPARED WITH PHOSPHORIC ACID.

Plots 17 and 18 had only materials containing potash; plot 15 had ashes, a fertilizer containing but little aside from potash; plots 20, 21, 23, and 27 had phosphoric acid in various forms; plots 4 and 5 had prepared fertilizers; No. 8 had no nitrogen; No. 9 had no potash; No. 1 had no phosphoric acid; Nos. 10 and 26 were complete chemicals, while Nos. 6, 16, 19, and 24 had no fertilizer of any kind. The following table gives the average results from these groups, the fifth column being obtained by adding the three crops to an assumed crop for the second year equaling first year. The sixth column shows the gain in four years, due to \$24 worth of fertilizer, each application being \$8 per acre.

Value of crops from plots fertilized in various ways, per acre.						Total four years, estimating sec- ond year's crop like first.	Value of increase of crop over plots that received no fertilizer.	Value of increase of crop for \$1 of fertilizer used.
	Plots.	Corn.	Oats.	Hay.	Total three years.			
Average from potash alone	{ 17 18 6 }	\$38.47	\$30.40	\$25.87	\$94.74	\$133.21	\$36.44	\$1.52
Nothing.....	{ 16 19 24 20 }	26.70	25.37	18.00	70.07	96.77	.....	.....
Phosphoric acid alone	{ 21 23 27 }	27.21	29.26	17.19	73.66	100.87	4.10	0.17
Phosphoric acid and potash	8	52.93	38.50	20.00	111.43	164.36	67.59	2.81
Phosphoric acid and nitro- gen	9	14.34	30.15	12.50	56.99	71.33	Loss.	.....
Phosphoric acid, potash, and nitrogen	10	50.35	34.10	19.50	103.95	154.30	57.53	2.39
Prepared or commercial fertilizers	{ 4 5 26 }	44.30	34.25	17.12	95.67	139.97	43.20	1.80
Complete chemicals	{ 10 26 }	55.59	33.35	19.62	108.56	164.15	67.38	2.80
Potash and nitrogen.....	1	55.64	31.15	15.00	101.79	157.43	60.66	2.51
Ashes	15	50.79	30.80	26.35	107.94	158.73	61.96	2.50

Phosphoric acid alone gives practically no increase of crop over unmanured plots. Potash alone gives a substantial increase,

holding out well, as is shown by the value of the last crop. Ashes, with one exception, proves to be the most economical fertilizer, thus showing the effect of potash in another form.

Plots 1, 8, 9, and 10 constitute a series which was planned to show the effects of various combinations in which the nitrogen, phosphoric acid, and potash are combined in various ways. Plot 1 gives us a total for four crops of \$157.43; this plot had no phosphoric acid added, and yet the results are well up to those obtained when phosphoric acid was used. Plot 8 omitted nitrogen, but the aggregate value of the four crops stands at the head. In plot 9 potash was omitted, and it stands at the foot, being considerably below the plots that received nothing. This may be accounted for by supposing that the sulphate of ammonia used was too strong for the seeds, this preventing germination. Here we have good evidence that the omission of nitrogen in no way interferes with the yield, and if the details of crop on plot No. 8 are looked at, it will be seen that the yield holds out well in the series of crops.

Omission of phosphoric acid does not seriously cut down the yield during the first three years, but in grass there is a marked falling off; but when potash is omitted the crops fall to the lowest point. Plot 10 has a complete mixture, and if we compare it with 8 it will be seen that one half of the muriate of potash in 8 is exchanged for an equal cost of sulphate of ammonia in 10. The yield in 10 is good, but falls below 8 by \$10.06 in four crops. From what has been said it is evident that potash stands first, phosphoric acid second, and nitrogen last. In fact we should use nitrogen but sparingly, and only when direct experimental work proves it to be profitable.

Returning to the table on page 283, we will study the best six yields of each crop. Plot 8 appears in all of these; plot 15 appears in corn and hay; plot 26 appears in corn at the very head of the column, and it is fifth in oats and seventh in hay, but in the column of total values of three years' crops plot 26 leads, with No. 8 next, etc. The following table shows the average per cent of nitrogen, phosphoric acid, and potash in the fertilizers which produce the six highest yields of each crop, and of the aggregate value of the three crops; also of the four best yields of each, and the sum of the three crops:

	Best six yields.				Best four yields.			
	Corn.	Oats.	Hay.	Sum of the three.	Corn.	Oats.	Hay.	Sum of the three.
Nitrogen, per cent	2.5	1.8	.3	2.00	2.40	2.5	.5	.60
Phosphoric acid, per cent.....	6.4	13.71	10.7	4.39	4.19	10.6	5.2	4.19
Potash, per cent	15.5	10.80	16.1	17.40	21.40	10.0	19.0	15.40

VALUE OF THREE CROPS (CORN, OATS, HAY), PER ACRE, WITH
DIFFERENT MANURES,

No fertilizer, \$70.07.

Potash alone, \$94.74.

Phosphoric acid alone, \$73.66.

Phosphoric acid and potash, \$111.43.

Phosphoric acid and nitrogen, \$56.99.

Phosphoric acid, potash, and nitrogen, \$103.95.

Prepared fertilizers, \$95.67.

Complete chemicals, \$108.56.

Potash and nitrogen, \$101.79.

Ashes, \$107.94.

SCALE, $\frac{1}{8}$ inch equals \$5.



The best yield of each is as follows :

	Nitrogen.	Phosphoric acid.	Potash.
Corn.....	2.5	5.75	25.0
Oats.....		9.00	20.5
Hay.....			8.0
Sum of these.....	2.5	5.75	25.0

These results, almost without exception, seem to warrant the conclusion already expressed that potash, and not phosphoric acid, is the controlling factor. Experiments made in other parts of the State, on soils differing greatly from the Connecticut river land, show even more marked results.

In the preceding cut I have represented the value of the three crops from each group of fertilizer as given in table on page 284. The lines represent dollars, one inch equaling \$40, or one eighth inch \$5.

VALUE OF NITROGEN FROM DIFFERENT SOURCES.

The three-acre experiment, the plan of which is given on page 279, was planned primarily to test manure applied in spring and fall, but each acre was divided into four sections, and these were fertilized as follows :

TABLE G.

FIFTH ACRE.

		lbs.
Section 1, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of ammonia . . .	5
Section 2, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Dried blood . . .	8½
Section 3, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Nitrate of soda . . .	7
Section 4, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of potash . . .	10

SIXTH ACRE.

		lbs.
Section 1, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of potash . . .	10
Section 2, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Nitrate of soda . . .	7
Section 3, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Dried blood . . .	8½
Section 4, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of ammonia . . .	5

SEVENTH ACRE.

Section 1, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of ammonia . . .	5
Section 2, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Dried blood . . .	8½
Section 3, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Nitrate of soda . . .	7
Section 4, 800 hills	{ Dissolved bone-black . . .	25
	{ Krugit . . .	33
	{ Sulphate of potash . . .	10

In each case one half was sown broadcast and one half in the hill. It will be seen that each acre had one section of each kind ; and so if all the sections having sulphate of ammonia, for example, were added together and compared with the sum of all that had nitrate of soda, the difference in the method of manuring the three acres would be overcome and not affect the comparative results.

TABLE H.

YIELD PER SECTION OF THE THREE ACRES.

		Sound corn.	Soft corn.	Fodder.	Source of nitrogen.
		lbs.	lbs.	lbs.	
Fifth acre	Section 1	700	270	1,460	Sulphate of ammonia.
	Section 2	740	190	1,500	Dried blood.
	Section 3	670	240	1,390	Nitrate of soda.
	Section 4	580	235	1,205	Potash instead of nitrogen.
Sixth acre....	Section 1	735	230	1,465	Potash instead of nitrogen.
	Section 2	745	250	1,645	Nitrate of soda.
	Section 3	800	154	1,496	Dried blood.
	Section 4	790	120	1,460	Sulphate of ammonia.
Seventh acre..	Section 1	480	350	1,575	Sulphate of ammonia.
	Section 2	450	280	1,360	Dried blood.
	Section 3	400	202	1,118	Nitrate of soda.
	Section 4	360	252	1,218	Potash instead of nitrogen.

The following rearrangement of these results shows the effect of the different sources of nitrogen, and also of a fertilizer containing no nitrogen :

TABLE I.

NITROGEN FURNISHED IN SULPHATE OF AMMONIA.

	Section.	Sound corn.	Soft corn.	Fodder.
Fifth acre.....	1	700	270	1,461
Sixth acre.....	4	790	120	1,460
Seventh acre.....	1	480	350	1,575
Total per 2,400 hills.....		1,970	740	4,496

NITROGEN FURNISHED IN DRIED BLOOD.

Fifth acre.....	2	740	190	1,500
Sixth acre.....	3	800	154	1,496
Seventh acre.....	2	450	280	1,360
Total per 2,400 hills		1,990	624	4,356

NITROGEN FURNISHED IN NITRATE OF SODA.

	Section.	Sound corn.	Soft corn.	Fodder.
Fifth acre.....	3	670	240	1,390
Sixth acre.....	2	745	250	1,645
Seventh acre.	4	400	202	1,118
Total per 2,400 hills.....		1,815	692	4,153

FERTILIZER CONTAINING NO NITROGEN.

Fifth acre....	4	580	235	1,205
Sixth acre.....	1	735	230	1,565
Seventh acre.....	4	360	252	1,218
Total per 2,400 hills.....		1,675	717	3,888

Above total results brought together :

	Sound corn.	Soft corn.	Fodder.
Sulphate of ammonia.....	1,970	40	4,496
Dried blood.....	1,990	624	4,356
Nitrate of soda	1,815	692	4,153
No nitrogen	1,675	717	3,888

There seems to be very little choice between the three forms of nitrogen used, but it does appear in this case that nitrogen increased the crop.

MANURE *vs.* CHEMICALS.

One of the questions frequently asked is this: "Can chemical fertilizers compete with farmyard manures?" This question is a very important one to those who are selling hay, as well as to farmers in the vicinity of villages and cities, where farmyard manure is available. For the past four years an experiment has been carried on which has given very satisfactory results, no accident happening to either of the areas under cultivation. Two acres of land, from a field of six acres, were selected for this experiment. The land had produced hay for three years pre-

vious to 1885, oats and sugar beets having preceded the hay. The plan on page 279 shows the arrangement of the six-acre field; the third and fourth acres are the ones to be considered.

The third acre had thirteen loads of manure plowed in and nine loads harrowed in, or in cords this would be 5.6 cords plowed in and 3.8 cords on surface, or 9.4 cords in all, which would sell, as it lay under the stables, for \$33. This manure was from fattening steers, well fed with hay, straw, cottonseed, and corn meal. The fourth acre had yearly applications of chemical fertilizers, mixed as follows: Dissolved bone-black, 346 lbs.; muriate of potash, 150 lbs.; sulphate of ammonia, 56 lbs. The average cost of this mixture has been \$11, and as there have been three applications since 1885, it follows that each acre has received \$33 worth of fertilizer; the third having \$33 worth of manure, and the fourth \$33 worth of chemicals. The first year the crop was corn, the second year corn, the third oats, and the fourth grass. The following table shows the yield of each acre for each year, and also the value of the crop, assuming eighty pounds of corn, as harvested, to be worth sixty cents, thirty-four pounds of soft corn ten cents, and fodder thirty cents per hundred, oats fifty cents per bushel, straw thirty cents per hundred, and hay ten dollars per ton:

		THIRD ACRE.		FOURTH ACRE.		Total yield with manure.	Total yield with chemicals.
		Manure.		Chemicals.			
		1885.	1886.	1885.	1886.		
Corn..	{ Sound corn*.....	112 bu.	83¾ bu.	97 bu.	82¾ bu.	195¾ bu.	179¾ bu.
	{ Soft corn.....	16½ bu.	27 bu.	15 bu.	24 bu.	43½ bu.	39 bu.
	{ Fodder	4,835 lbs.	4,435 lbs.	5,352 lbs.	4,927 lbs.	9,270 lbs.	10,279 lbs.
	{ Value of crop	\$49.75	\$41.12	\$46.65	\$42.00	\$90.87	\$88.65
		1887.		1887.			
Oats..	{ Grain †.....	43 bu.		47½ bu.			
	{ Straw.....	4,535 lbs.		5,267 lbs.			
	{ Value of crop.....	\$35.10		\$39.55		\$35.10	\$39.55
		1888.		1888.			
Hay..	{ Yield.....	5,880 lbs.		6,202 lbs.			
	{ Value	\$29.40		\$31.01		\$29.40	\$31.01
Total crop for four years ...						\$155.37	\$159.21
Excess of value for chemicals						3.84	

* Sound corn, 40 lbs. per bushel; soft corn, 34 lbs. per bushel.

† Oats, 32 lbs. per bushel.

The cost of applying the manure was \$2.80, and for the three applications of chemicals, \$1.44. This experiment has been carried out with the expectation of continuing it for two or three years more with grass, after which the same fertilizer should be repeated.

It will be seen from the plan of the field on page 279 that the plot experiments were immediately adjoining the fourth acre, and from the table on page 281 the following yields from plots 6, 16, 19, and 24 are obtained as the natural capacity of the soil, no fertilizer of any kind being used on them: Corn, sound, $47\frac{1}{4}$; soft, $27\frac{1}{4}$; fodder, 3,246; oats, $33\frac{1}{3}$; straw, 2,900; hay, 3,600. From these figures it will be seen that the value of the corn crop was \$26.70, the oat crop, \$25.37, hay, \$18.

The individual yield of the plots in 1886 was not determined, but I have assumed that it was the same as the previous year, though it was probably somewhat less. The total value of the four crops where no manure or fertilizer was used would be \$96.77, hence the gain due to manure has been \$58.71, while the chemicals have given a gain valued at \$62.55. It will be interesting to see how the amount of deficient plant food in the fertilizer compares with that contained in the excess of crop over that produced without fertilizer.

In the table showing the plant food removed by various crops, I have computed the amounts removed by average crops, or perhaps by what might be termed good crops. In the table on page 293 is arranged the plant food taken by each crop on acres three and four, and also on the plots having no manure. The difference shows the drain upon the land by the increased yield marked "Difference to come from fertilizer." While the last column, marked "Furnished in manure or chemicals," shows the plant food furnished in the manure, and also in the chemicals, for the whole period.

It will thus be seen that in the acre fertilized with chemicals there has been applied about four times as much phosphoric acid and nearly two times as much potash as was removed by the excess of crop over the natural production of the land, but only a little over one third as much nitrogen was provided as the crops would seem to require. It is true that certain quantities

	THIRD ACRE — MANURE.					FOURTH ACRE — CHEMICALS.					NOTHING PLOTS.				
	Weight as harvested.	Weight after shrinkage of 20 per cent.	Nitrogen.	Phosphoric acid.	Potash.	Weight as harvested.	Weight after shrinkage of 20 per cent.	Nitrogen.	Phosphoric acid.	Potash.	Weight as harvested.	Weight after shrinkage of 20 per cent.	Nitrogen.	Phosphoric acid.	Potash.
Corn, 1885.. { Fodder	4,835	3,868	18.56	14.70	64.21	5,352	4,282	20.55	16.27	71.07	2,706	2,237	35.64	12.30	7.39
{ Corn	5,041	4,033	64.52	22.18	13.31	4,390	3,512	56.19	19.32	11.59	3,246	2,597	12.46	9.87	43.11
Corn, 1886.. { Fodder	4,435	3,548	17.03	13.48	58.90	4,927	3,942	18.92	14.98	65.42	.....	.....	48.10	22.17	50.50
{ Corn	4,268	3,414	54.63	18.78	11.27	4,120	3,301	52.81	18.15	10.89	.....	.....	.....	.....	.....
Oats, 1887 .. { Oats	1,376	1,170	22.46	6.43	4.91	1,520	1,292	24.82	7.11	5.43	1,068	961	18.40	4.80	3.68
{ Straw	4,535	4,081	16.33	7.35	39.60	5,267	4,740	18.96	8.53	45.98	2,900	2,610	10.44	4.70	25.32
Hay, 1888.....	5,880	4,704	60.00	19.99	90.55	6,202	4,962	60.30	21.09	95.51	3,600	2,880	35.02	12.24	55.44
Total for four crops.....			253.53	102.91	282.75			252.55	105.45	305.87			160.06	66.08	185.44
Total in nothing plots			100.06	66.08	185.44			160.06	66.08	185.44					
Difference to come from fertilizers ..			93.47	36.83	97.31			92.49	39.37	120.43					
Furnished in manure or chemicals..			302.00	175.00	361.00			34.00	166.00	225.00					

of ammonia are yearly brought down in the rain, but this is offset by the loss in drainage water. We must conclude, therefore, that more of the soil nitrogen is rendered available each year than there is of the phosphoric acid or potash, and that the application of one or both of these latter substances would increase the yield without the aid of nitrogen; and as has already been shown, the potash is the element that controls, and nitrogen is comparatively useless.

There can be no doubt that there is still potash and phosphoric acid enough left in the acre fertilized with chemicals to give two or three more good crops of hay, and it is quite probable that the supply of nitrogen will not fail. On the acre with manure we are not so certain of our figures, for the analysis of the manure is an average one taken from many sources, but is probably somewhere near the truth. The phosphoric acid is about the same as that supplied in the chemicals, but the potash is considerably greater, while there has been a most wasteful amount of nitrogen applied. Allowing that there was need of supplying the whole excess of 93.47 pounds, and also that not over half of the nitrogen applied can ever be recovered, we still have over 80 pounds more than have been used; or if we consider the 34 applied on the fourth acre sufficient, as it certainly has been, then we have 147 pounds extra. Now, while definite figures can be of little use, on this point we may safely say that farmyard manure is much too rich in nitrogen in proportion to potash or phosphoric acid.

There was one point which was very clearly demonstrated in this experiment, namely, the effect of fertilizer upon the kind of vegetation. Each acre was seeded with mixed seed, herd's-grass, redtop, and alsike clover. The seed was mixed alike, sown alike and at the same time, harrowed the same, and treated in all respects in the same way, but throughout the growing season the line between the two acres was marked by the abundance of clover on the acre where chemicals were used, and the absence of clover where the manure was used. This line was so well marked that when the grass was cut it was possible to divide the two acres by the line where the clover ended. In another field where nothing but chemicals have been used for five years and

where a part of the field was dressed with a mixture unusually rich in potash, the same circumstance has been observed for two years, the exact line being plainly indicated by the clover on the potash side and the absence of clover on the other. The plot experiments show this more forcibly than the cases already mentioned, and in the following table I have given the number of the plot, the per cent of nitrogen, phosphoric acid, and potash in the fertilizer, and in the next three columns the relative per cent of herd's-grass, clover, and redtop in the hay when harvested. These proportions are, of course, estimated, but it was done when the grass was partially dry, and must be very close to the true ratio. It will be noticed that the amount of clover follows very closely the per cent of potash in the fertilizer, and as the seed sown was exactly alike on each plot, there is no escape from the conclusion that potash promotes the growth of clovers.

PLOT.	COMPOSITION OF FERTILIZER.			PER CENT OF EACH VARIETY OF GRASS.		
	Nitrogen.	Phosphoric acid.	Potash.	Clover.	Herd's-grass.	Redtop.
1	7	....	32	10	70	20
2	3	12	2	0	20	80
3	3	12	2	0	15	85
4	3	12	6	1	19	80
5	3	12	2	1	19	80
6 .....	....	....	....	1	19	80
7	3	12	2	2	23	75
8	0	9	20.5	55	40	5
9	5.5	16	0	5	85	10
10	2.5	9.5	11.25	10	80	10
11	3	12	2	2	58	40
12	3	12	2	2	48	50
15 .....	....	2	8	35	60	5
16 .....	....	...	....	2	48	50
17 .....	....	....	8	35	55	10
18 .....	....	....	50	40	55	5
19	0	0	0	1	24	75
20 .....	....	16	....	1	19	80
21 .....	....	34	....	1	19	80
22	2	19	10	20	60	20
23 .....	....	34	....	1	19	80
24	0	0	0	0	15	85
25 .....	....	15	....	1	14	85
26	2.5	5.75	25	35	60	5

This is an important fact, for it is well known that clover stores up nitrogen in the surface soil, its long, deep roots gathering the costly element from the subsoil and bringing it up within reach of the cereals or other crops; thus by the use of combina-

tions containing a large per cent of potash, we are able indirectly through the growth of clover to increase the available nitrogen in our surface soils. So far as results have been obtained, we are justified in saying that chemicals rightly proportioned can be used as a complete substitute for farmyard manure, that they will produce as great a value of crop, dollar for dollar, as manure, and that they improve the quality of the hay by increasing the clover, and indirectly the supply of available nitrogen is increased.

In conclusion, I wish to say that I am thoroughly convinced that our fertilizer manufacturers must give us in New Hampshire more than four per cent of potash, and from other New England States I am receiving letters which convince me that New England as a whole would be benefited by ten per cent of potash in the fertilizers used; and were I to buy a prepared fertilizer to-day for our general crops I would get some one of the so-called "special potato fertilizers," since they have more potash than any others on the market.

My advice to farmers is to buy dissolved bone-black, containing sixteen per cent of soluble phosphoric acid, muriate of potash, containing fifty per cent of actual potash, and sulphate of ammonia, containing twenty per cent of nitrogen, and from these crude materials mix such combinations as are best suited to the soil and crops under cultivation. These materials may be obtained from any fertilizer manufacturer. They are in forms that are ready for use, and there is nothing to do but to mix the required amounts exactly as one would mix corn meal, shorts, and cottonseed together for feeding. It is no more labor, nor is there any danger. Every farmer can experiment for himself if he buys his deficient plant food in these separate substances, for he is at liberty to mix them in any proportion that he pleases, and in time it would be possible for each to supply those elements which the soil most needed, and to withhold those not specially required. There certainly can be no loss, for in any event the crude chemicals will be as cheap as the manufactured goods.

The following combinations can be used to good advantage, and have all been tested and found well adapted to our conditions in New Hampshire. Each combination is for one acre,

VI.

OATS (like the best plot in experiments, No. 8).

Dissolved bone-black	.	.	.	.	.	.	.	300
Muriate of potash	.	.	.	.	.	.	.	200
								<hr/> 500

VII.

HAY (average of four best crops).

Dissolved bone-black	.	.	.	.	.	.	.	225
Muriate of potash	.	.	.	.	.	.	.	254
Sulphate of ammonia	.	.	.	.	.	.	.	21
								<hr/> 500

VIII.

HAY.

Dissolved bone-black	.	.	.	.	.	.	.	700
Muriate of potash	.	.	.	.	.	.	.	200
Sulphate of ammonia	.	.	.	.	.	.	.	50
								<hr/> 950

IX.

POTATOES.

Dissolved bone-black	.	.	.	.	.	.	.	340
Muriate of potash	.	.	.	.	.	.	.	160
								<hr/> 500

X.

POTATOES.

Dissolved bone-black	.	.	.	.	.	.	.	300
Muriate of potash	.	.	.	.	.	.	.	150
Sulphate of ammonia	.	.	.	.	.	.	.	50
								<hr/> 500

It will be observed that these combinations contain a considerable quantity of muriate of potash, and it must be borne in

mind that if seed comes in direct contact with them there is great danger of the root being injured, if not wholly destroyed. For this reason I would especially recommend that a large part of the fertilizer be used broadcast. The amounts above given are for one acre when no manure is to be used. For corn and potatoes I would never put more than one hundred and fifty pounds in or on the hills or drills, and I would first plant and cover the seed as though no fertilizer was to be used, and immediately after would apply the one hundred and fifty pounds on the top of the hill or drill, leaving it there to be washed down into the soil by the rains. There is little if any loss in this method, and I believe the results will be better than from putting the fertilizer in the hill.

Combination I. I would especially recommend for corn, IV. for ensilage, and V. for oats, or, as will be seen, it is so much like I. that the same mixture may be used for either corn or oats. However, if oats follow corn that has been manured with farm-yard manure, it is not necessary to use nitrogen, and in such a case I would recommend No. VI., or the potato mixture No. IX. may be used. For hay two combinations are given; the second is to be recommended if four or five crops are wanted. For potatoes the same remarks as have been made concerning oats will apply. If the potatoes follow some crop that has been manured with stable manure, there is no need of nitrogen, and therefore No. IX. would be best. In soils deficient in nitrogen, No. X. might be best. It will be seen from what has been said that the corn combination I. may be used for corn, wheat, oats, and, on some soils, for potatoes. The potato mixture IX. may be used for potatoes and oats on soils that have previously been manured, or are not deficient in nitrogen. For ensilage No. IV. is to be recommended.

To mix these, weigh or measure out the required amount (see table of weights, page 268), sweep a place on the barn floor and put down the separate substances, then shovel the mixture over until well combined; it is then ready for use. None of the substances are volatile, hence there is no loss by standing.

PATRONS OF HUSBANDRY.

OFFICERS OF THE NEW HAMPSHIRE STATE GRANGE

1889.

CHARLES McDANIEL, <i>Master</i>	.	.	.	West Springfield.
CHARLES N. CLOUGH, <i>Overseer</i>	.	.	.	Canterbury.
JOHN D. LYMAN, <i>Lecturer</i>	.	.	.	Exeter.
FRANK H. WELD, <i>Steward</i>	.	.	.	Cornish.
JAMES E. SHEPARD, <i>Assistant Steward</i>	.	.	.	New London.
Rev. ELISHA H. WRIGHT, <i>Chaplain</i>	.	.	.	Hill.
JONATHAN M. TAYLOR, <i>Treasurer</i>	.	.	.	Sanbornton.
NAHUM J. BACHELDER, <i>Secretary</i>	.	.	.	East Andover.
HENRY MOORE, <i>Gate-Keeper</i>	.	.	.	Goffstown.
Mrs. CHARLES McDANIEL, <i>Ceres</i>	.	.	.	West Springfield.
Miss ADDIE E. RICE, <i>Pomona</i>	.	.	.	Henniker.
Mrs. NAHUM J. BACHELDER, <i>Flora</i>	.	.	.	East Andover.
Mrs. EMRI C. HUTCHINSON, <i>Lady Assistant</i>	.	.	.	
<i>Steward</i>	.	.	.	Milford.

EXECUTIVE COMMITTEE.

CHARLES McDANIEL, <i>Chairman</i>	.	.	.	West Springfield.
WILLIAM W. BURBANK, <i>Secretary</i>	.	.	.	Webster.
NAHUM J. BACHELDER	.	.	.	East Andover.
ROBERT D. GAY	.	.	.	Manchester.
JOHN W. FARR	.	.	.	Littleton.
E. C. HUTCHINSON, <i>General Deputy</i>	.	.	.	Milford.

The farmers' organization known as the Grange has witnessed a year of marked advancement in the State. Not only have the number and membership of the subordinate Granges been largely increased, but also its principles and purposes are becoming better known among all classes of people, and its meritorious work is being recognized by all having the best interests of our farming population at heart. About two thousand meetings were held by the subordinate and seventy-five by the county Granges during the year. Agricultural subjects were discussed at nearly all meetings, and the knowledge gained by the thousands who participated can be but faintly estimated. The social and the educational features, in addition to the agricultural education acquired, have had a powerful influence in developing the sturdy tillers of the soil in culture and refinement.

The annual meeting of the State Grange was held at Manchester, December 18, 19, and 20, 1888, and attended by farmers and their wives from more than one hundred towns in the State. On the evening of the 19th a public session was held, at which addresses were made by leading men of the State. During the session valuable papers, upon various agricultural subjects, were presented, and we regret that space will not allow their publication in this report. The annual address was made by Charles McDaniel, of Springfield, master of the State Grange, and from its importance in connection with the work of the Grange in the development of New Hampshire agriculture, we herewith present it for the perusal of our readers, followed by the report of the secretary made at the same meeting, which gives in detail the progress made by the Grange during the year; also the list of Granges and their officers May 1, 1889.

ANNUAL ADDRESS.

BY CHARLES MCDANIEL, OF SPRINGFIELD.

*Officers and Members of the New Hampshire State Grange,
and Brother and Sister Patrons:*

Agreeably to Grange law and custom, it becomes my duty to report to you, at this time, the condition of the order of Patrons

of Husbandry in the old Granite State, at this, the fifteenth annual session, with such thoughts and suggestions as may appear pertinent. We are again assembled in this beautiful and prosperous city of Manchester, where we ever find a hearty welcome and cordial greeting, and it is with renewed satisfaction that we are able to report continued prosperity in our Grange work.

Our organization being founded on principles as firm and as lasting as our granite hills and fertile valleys, so our noble order appears to have come to stay and improve in all that tends to better the condition of its entire membership. It appears not a little surprising to us who have borne the heat and burden of the day, and who have been more or less familiar with the workings of agricultural societies, that there are so many outside who have not given the subject of organization and co-operation among farmers their careful study and investigation. Yet such is the fact, and with our already large Grange membership, and the large number of meetings held in over one hundred towns in the State, we may reasonably expect a continued increase in membership and intellectual work.

During the past year we have organized new Granges in the towns of Lebanon, Auburn, Wolfeborough, Gilsum, Tuftonborough, Keene, Chichester, Hinsdale, Rindge, Jaffrey, and Marlow; also two Pomona Granges in Grafton and Cheshire counties.

The work of organization has been accomplished by the assistance of our deputies, who have found certain fields ripe and ready for the harvest. In the early part of the year I made application to the lecturer of our National Grange for further assistance in Grange work here. His reply was, in substance, that we were all right in New Hampshire, and that his services were more needed elsewhere, — an answer more consoling than satisfactory. The treasurer of the National Grange points with a degree of pride to our State as continually advancing for the past seven years. In view of the fact that we have thus far succeeded in making our Grange work a success, we must continue to advance and work, work, work, individually and personally, not only to retain the laurels already won, but to press forward and reach out a helping hand to those outside our gates, and

assist in the work of more Grange organizations and increased membership.

EDUCATION.

Truly, education is one of the principal corner stones of the Grange. It is taught in our ritualistic work, and made prominent in all the walks of life. It is not only the duty of Patrons to look after the education of the children, but it is also their duty to educate and elevate themselves, so as to be better citizens and better qualified for the business and pleasures of the farm and home. As to how well and how faithfully the members of our Grange have fulfilled its purpose in this respect, the success and history of our work that is before us gives an unmistakable answer. It is well understood that a large percentage of the rising generation among the farmers have the foundation of their education laid in the common schools. Therefore it is and will be our duty as Patrons to study well the different opinions in regard to our present school laws, and by proper and continued discussion of the workings of our present system decide what changes, if any, are necessary to promote the greatest good to all. By so doing we can very essentially assist in so amending the law at our next session of the Legislature, that greater equality of privileges will be granted for the highest and best interests of our common schools.

AGRICULTURAL COLLEGE.

This institution has been founded expressly for the farmers and mechanics, and it is intended to supplement the common school for that class who desire to perfect themselves in the rural pursuits of life. Now, is it not the duty of the Grange, both state and subordinate, to endeavor to sustain and build up this institution that has made heretofore a worthy record?

A circular has already been issued asking for a free and open discussion of the work of the college, — what it has done, is now doing, and what it is capable of doing in the future, — making such suggestions as may seem best for our own location, and such kindly criticisms as experience may dictate. Let the faculty of this institution know what is wanted, and then furnish the students that the want may be supplied.

EXPERIMENT STATION.

Our State Grange may well feel a degree of pride in having the honor of assisting in formally laying the corner stone of our Experiment Station in June last with an appropriate ceremony. This ceremony was prepared for the occasion and the first of the kind ever used by the Grange.

The fund for the establishment and maintenance of agricultural experiment stations having become available, and the work of the station being already begun, it is very important that the Grange act well its part by aiding the work of the station in every possible way. Give them work to do. Ask them for any special analysis your subordinate Grange may need. Carefully distribute their bulletins where they will be read and appreciated.

I would also indorse the recommendation of Bro. James Draper, acting master of National Grange, in his address, — that each State make provision for the election of a committee on experiment stations, consisting of three members, one of whom shall be elected annually and whose term of office shall be for three years, whose duties shall be to co-operate with the station in fulfilling the objects for which they were created ; that said committee shall report annually to the State Grange, in full, the results of their work and investigation, and the actual necessary expense incurred by said committee shall be paid from the State Grange treasury ; further, that said committee, should they deem it expedient, correspond with the United States Department of Agriculture in regard to experiment station work. Prof. W. O. Atwater, who has the supervision of the United States experiment work, addressed the meeting of the last National Grange at Topeka upon this subject. He desired to know what line of work was most wanted in the various locations, and solicited correspondence from all interested in the results to be obtained. He will furnish the United States experiment station bulletins to all who apply for same.

CHILDREN'S DAY.

Children's day was appointed the first Saturday in June, by advice of the executive committee, and proclamation issued accordingly. The day was duly observed as a pleasant and profit-

able holiday for the children, for whom a special literary program was prepared, in which all were invited to take part, closing with a banquet and amusements. This custom having been brought to the notice of other States, a resolution was presented in the National Grange for the appointment of Children's day by the National Grange master; this was referred to the committee on good of the order, who reported, "It is believed that it would give to our order an additional incentive if the master of the National Grange would proclaim such a day," and recommended its adoption. This custom, we trust, will soon become a national children's holiday, as universally as Thanksgiving day has been national in its appointment since the year 1863.

ARBOR DAY.

Arbor day, appointed by His Excellency Charles H. Sawyer, Governor of our State, agreeably to his proclamation, was more especially observed on that day in the Southern than in the Northern part of the State, on account of the lateness of the season; but by special adjournment many improvements heretofore begun were carried forward agreeably to the spirit of the proclamation, thereby continuing to improve our homes and public grounds by planting, pruning, and nourishing tree, shrub, and vine. The object to be secured by the proper observance of this day's work cannot be too strongly recommended and the practice continued.

GRANGE INSPECTION.

We think more active, systematic visitation and inspection work has been done during this than in any former year by our district deputies, and the result of the work will be given in your general deputy's report. The several district deputies were notified to meet at Tilton during the State Grange Fair and receive instruction from Hon. James Draper, H. P., who came for the purpose of instructing in the U. W. of our order. Nearly all the deputies and many other Patrons were present and received valuable and correct language. We are of the opinion that a large share of our success is due to the correctness and proficiency of the work in the subordinate Granges and the perfectness of inspec-

tion. I personally visited many Granges in the month of January and inspected their work, besides performing the service of installation. Invariably I found good and active work being done. Realizing the amount of time and expense necessary for this inspection service, I recommend that, if the funds of the treasury will allow without depleting the same, a certain sum be paid deputies for each Grange inspected and reported in full to the general deputy, as required by this State Grange.

FINANCIAL.

The reports of your secretary and treasurer will give you in detail the financial condition of our order. We find that our expenses are proportionate only in a limited degree the past year to the advance in our receipts from the increased membership. The close of the year 1887 showed an increase of cash on hand of only \$51.68. This year the balance, as will be given, is over \$400 gain from last year. You are well aware that a large amount of work has been done by private members, as well as by appointed officials, without pay. They have worked for the good of the order. If we can continue this and kindred service by volunteers, it will be most acceptable and doubtless as effectual as paid labor. I trust this subject will receive your careful consideration.

THE PRESS.

The press continues to be one of our main levers in raising our structure and disseminating the knowledge of our work, as well as keeping before the public the progress of our order. The masses are reached through this medium more than could be done by lecture work. We should do all, consistent with our means, to continue the distribution of Grange and such other papers as give a prominent space to the Grange department. Some may say that we have too much sameness and that these departments are liable to be overdone. Fear not ; it is by continued agitation, discussion, and publication of our work by means of the press that we shall improve and prosper.

THE LECTURE WORK.

The lecture work is a valuable adjunct to our printed pages, as shown by the reports from different States, especially when fol-

lowed by personal effort and united action or co-operation among our members. We may by the aid of our lecturer's voice — national, state, and subordinate, — supplemented by public discussion, arrive at facts of value and interest to those outside as well as those inside our gates. The printed leaflets and weekly record page of our national lecturer, Hon. Mortimer Whitehead, in many locations have been productive of much good, where they have been carefully and judiciously distributed among our farmers. We are in favor of a continuation of their distribution as a cheap and yet valuable means of showing the extent of our work.

THE NATIONAL GRANGE.

The National Grange held its twenty-second annual session in Topeka, Kansas, November 14 to 22, and was represented by delegates from thirty-three States. The meeting was opened and conducted by Hon. James Draper, overseer and acting master of the National Grange, on account of the death of Hon. Put Darden, master. This session was one of special interest, being the first that had ever conferred the seventh or highest degree of the order in full form. The journal of proceedings will soon be forwarded to the master of each subordinate Grange. This journal should be entirely and carefully read by the lecturer or some member in open meeting, with such criticisms or words of approval as are suggested by its contents.

A public reception was given to the National Grange and Farmers' Congress (which convened at same time in same building) in Representatives' Hall on the second day of the session. Program: Prayer by Dr. F. S. McCabe; greeting glee by the Modocs; addresses of welcome by Gov. John A. Martin and Mayor D. C. Metsker; responses by Hon. James Draper, acting master, ex-Gov. Robie, master Maine State Grange, and Hon. R. F. Kalb, president of Farmers' Congress; music; address by Bro. John G. Otis, for Patrons of Kansas; response by Bro. W. A. Armstrong, of New York; address by Hon. A. W. Smith, for Kansas Board of Agriculture; response by B. F. Clayton, of Iowa, secretary of Farmers' Congress; music; address by George T. Fairchild, president Kansas Agricultural College. William Sims, master of Kansas State Grange, was the presiding officer

of this meeting. These several addresses and responses were characterized by their home sentiments, each representing their own local advantages and successes, except that of Brother Draper, who very appropriately alluded to the loss sustained by our order in the death of its chief, Hon. Put Darden, and the "vacant chair," which was surrounded by appropriate emblems of mourning for the departed Grange orator, philanthropist, and eminent Patron.

A telegram was received from Bro. N. J. Coleman, United States Commissioner of Agriculture, Washington, D. C., stating that "Pressure of official business prevents attendance, but my best wishes are with you in the noble work of ameliorating the condition of the American farmer."

He was represented by Prof. W. O. Atwater, who, as before stated, spoke upon the work of experiment stations.

By invitation, November 17, we visited the Kansas Agricultural College at Manhattan, where we found spacious buildings, a fine location, and an efficient corps of teachers, one of whom is from our New Hampshire College of Agriculture, and a native of Franklin, N. H.

This college is comparatively young, but is doing a good work, having a department for girls where domestic economy, cooking, sewing, and fine arts are taught. The male or boys' department has buildings for machine and wood work. All students are required to do a certain amount of daily manual labor, and those who desire have a limited amount of paid labor to perform. Even here in the Sunflower State we found a silo upon the college farm, and the ensilage feed being given as an entire feed, except with a limited addition of bran or shorts to a portion of their stock, most of which was of the beef breeds.

STATE BOARD OF AGRICULTURE.

The New Hampshire State Board of Agriculture continues to advance along the line, and has already begun its yearly campaign by holding institutes in the different counties of the State. We trust that as many Patrons as can will avail themselves of the opportunity to attend as many of these institutes as practicable, and aid in the work of these meetings as well as act the

part of pupil or hearer. By a careful perusal of the last report of the Board, we find many valuable truths — the results of long-tried experiment. Let us bid this and all other organizations that work for the up-building of agriculture "God speed," and hasten the day when all will truly say that farming does pay, if managed with that economy that is so necessary in other vocations.

STATE NORMAL SCHOOL.

The State Normal School also demands our attention and support, but not to the exclusion of any other department of our work. Many of our children are necessarily becoming teachers and educators. In this vocation, as in any other, they need special training as to how to instruct in the most approved methods and manner, that time may not be wasted in our common and higher schools. Then let us give the normal school at Plymouth that patronage and support its importance demands.

Large sums of money have been paid by us for its buildings and maintenance, and in no other way can we receive an equivalent but by the patronage alluded to. It has been well said by one of our members that "it is as important and necessary that a teacher should be as especially educated for this work as a carpenter or any other professional man."

CONSTITUTIONAL AMENDMENTS.

The following amendments to the Constitution were adopted by the National Grange, and will be presented for your action at this session :

1. Amend Article 7 by adding thereto the following: "*Provided*, that State Granges shall have the power to reduce the fee within their respective jurisdictions to any sum not less than one dollar."

2. Amend Article 1, under the head of "District and County Granges," by striking out the words "not to exceed one in each county," where they occur in the second line of said article.

3. Amend Article 14 by striking out the words "three fourths," where they occur in the third line of said article, and insert in lieu thereof the words "two thirds."

4. Amend Article 7 by adding thereto the following: "*Pro-*

vided, that the membership fee for the children of the members of the Order, under twenty-one (21) years of age, shall be one dollar."

THE GRANGE STATE FAIR.

The Grange State Fair holden at Tilton in September was the third annual exhibition, and like its predecessors was very successful. It was pronounced by a prominent Patron from Massachusetts, who took a "bird's-eye" view of the grounds, stock, and exhibit generally, one of the cleanest fairs he ever witnessed or attended. I am credibly informed that there is a surplus in the fair treasury after paying all expenses and premiums in full. The universal thanks of all members of the Grange are due to Hon. Charles E. Tilton for his continued generosity in behalf of the enterprise. May the Patrons of New Hampshire continue to improve in this Grange fair exhibition, and further verify the assertion that "the best in kind and quality can never become too abundant."

NATIONAL LEGISLATION.

While so much class legislation is accomplished by all other industries, we must keep the eye of the mind open to our own interests. We must not only secure the passage of such laws as are for our own benefit, but so arrange our forces as to prevent other interests from infringing upon our legitimate business in various ways.

I will mention only a few of the subjects that claimed the attention of the National Grange for your thought and consideration, viz., the combinations of capital in the form of trusts; the adulteration of food; the fraudulent imitations of the products of the dairy, under the name of oleomargarine or butterine, which are often sold under the name of butter; the election of postmasters by the patrons of the various offices instead of their appointment by the postmaster-general; aliens acquiring title to the soil; national banking system; sericulture; geological survey, etc., etc.

The 20th and 21st sessions of the National Grange adopted resolutions indorsing the proposition to hold at the national capital in 1889 an American inter-republic celebration of the

centennial of the Constitution of the United States, and a Three Americas' and World's Exposition in 1892.

At the 22d or last session, the movement was again heartily indorsed, and the secretary of the National Grange appointed a committee to attend the meeting of the National Board of Promotion at Washington, December 4, 1888. The following resolution was adopted:

"Resolved, That we commend it to all Granges and agriculturists of the United States as a matter of great practical importance, and urge them to use their influence toward the consummation of this great work."

The foregoing record and resolution duly explains its purpose, of which we should take due notice and govern ourselves accordingly.

INSURANCE.

Efforts were made early in the year to revive the old or organize a new fire insurance company. After several preliminary meetings were held, the formation of a new company was perfected by the name of "The Grange Mutual Fire Insurance Company of the State of New Hampshire."

Business was commenced July 20, 1888, when applications for insurance on \$250,000 of insurable property had been pledged or applied for. We have to date \$356,500 of Patrons' property insured in this company. We have not known of any losses since we commenced writing policies, by the members of our company. Patrons, we ask you to help us in this enterprise by placing your insurance in your own company. Experience shows that in all companies similarly organized by Patrons in the United States, the actual cost has averaged less than one third of the premiums charged in regular stock companies. No company can offer a safer insurance than ours.

THE PATRONS' RELIEF ASSOCIATION.

The Patrons' Relief Association has made a net gain during the past year. The report of the president and secretary one year ago showed that eleven deaths had occurred among members of this association since its organization nearly eleven years ago.

The arguments presented one year ago during the session of the State Grange all went to convince those present of the advantages of becoming a member of this form of life insurance. It appears unnecessary at this time to discuss the objects and benefits to be derived by uniting, or by becoming a member. Yet man is sure to die and go to his long home; then, since death is so certain, and the time when we know not, why not insure in this association? A word to the wise is sufficient. Ponder well the necessity of supporting this association founded in faith, hope, charity, and fidelity.

IN MEMORIAM.

The custom of holding a service in respect to the memory of members or past members of this body who have died during the year is in harmony with the feelings of all who have lost relatives and friends. Truly we are all brethren. Let us then devote an hour during this session to the memory of our departed brothers and sisters who were members of this State Grange but have advanced to the great Grange above, where further advancement will be unknown. We should also take due notice at the same time in respect to the death of Hon. Put Darden, master of the National Grange, which occurred July 17, 1888, at his home in Fayette, Mississippi, the remembrance of whom is still fresh in the memory of every Patron in the land. Numerous memorial services have been held and resolutions of sympathy have been adopted and forwarded to the members of his bereaved family; yet it is meet and proper that a memorial page be set apart in our annual records and journal, and suitable resolutions expressing our sympathy and sorrow adopted by this State Grange.

This State has contributed by individual subscription and from subordinate Granges towards the Darden memorial fund for the benefit of his family the sum of \$220.34, as shown by the secretary's records.

We are pained to record the following list of deaths during the past year as reported to us:

Brother Daniel Sherry, master of Monroe Grange No. 49, died April 7, 1888.

Brother Richard H. Sanborn, past master of Mount Belknap Grange No. 52, Gilford, died April 2, 1888.

Brother John C. Currier, past master of Mascoma Grange No. 68, West Canaan, died September 2, 1888.

Sister Caroline Goodhue, wife of Benjamin Goodhue, past master of Joe English Grange No. 53, New Boston, died January 21, 1888.

Sister Mary J. Vose, wife of Brother Roger H. Vose, past master of Joe English Grange No. 53, New Boston, died March 30, 1888.

Sister Kate G. Burleigh, wife of Brother Wallace Burleigh, past master of Franklin Grange No. 108, died May 13, 1888.

Sister Ruth M. Wheeler, wife of Brother P. C. Wheeler, past master of Warner Grange No. 90, died May 21, 1888.

Sister Ella C. Carter, wife of Brother R. F. Carter, past master of Lancaster Grange No. 48, died August 1, 1888.

Sister Lucy M. Hewes, wife of Nathan W. Hewes, past master of Morning Star Grange No. 62, Lyme, died June 4, 1888.

The record of the past year is now before us. Let us consider well its history. Prove all things. Hold fast to that which is good. Let us strive to continue in the discharge of our duty, and show to the world that our object is the benefit of mankind and that we are endeavoring to improve the condition of the farmer. Let the objects of our order be prominent in our minds, as a beacon light to guide us, and those who may follow, to higher and nobler aims in life. Let us strive to advance all our interests, "and prosper all orders and associations having for their object the advancement of education and the moral welfare and happiness of mankind."

REPORT OF THE SECRETARY.

BY N. J. BACHELDER.

Worthy Master and Patrons :

In view of the important business to be transacted at this session, for which there will be none too much time, we proceed at once to the report of your secretary, which speaks forcibly and favorably for our order in the Granite State.

Please bear in mind that subordinate Granges report quarterly

to the State Grange, and the latest reports received are for September 30, 1888. The membership September 30, 1887, was 5,865.

During the year ending September 30, 1888, eleven new Granges have been organized, as follows :

Star King No. 124, Jefferson, C. H. Burnham, master.

Walpole No. 125, Walpole, Alvin Dwinell, master.

Lebanon No. 126, Lebanon, John S. Freeman, master.

Massabesic No. 127, Auburn, H. C. Sanborn, master.

Lake Shore No. 128, Wolfeborough, John H. Rust, master.

Ashuelot No. 129, Gilsum, Oscar J. Willson, master.

Ossipee Mountain No. 130, Tuftonborough, Charles E. Ham, master.

Cheshire No. 131, Keene, Solomon F. Merrill, master.

Chichester No. 132, Chichester, Oliver Drake, master.

Wantastaquit No. 133, Hinsdale, Sylvester Davenport, master.

Marshall P. Wilder No. 134, Rindge, Jason S. Perry, master.

Making 103 active subordinate Granges with a membership, September 30, 1888, of 6,701.

The additions are from the following sources : By initiation, males, 476, females, 473 ; by dimits, males, 19, females, 20 ; by re-instatement, males, 34, females, 29 ; by charter members of new Granges, 307 ; making a total gain of 1,362.

The losses are : By suspension for non-payment of dues, males, 166, females, 158 ; by dimits, males, 43, females, 54 ; by withdrawals, males, 32, females, 28 ; by death, males, 22, females, 21 ; by expulsion, males, 2 ; making losses to the number of 526 ; deducted from the total additions gives a net gain of 836, and a membership of 6,701 for the year ending September 30, 1888.

Since September 30 two new Granges have been organized :

Jaffrey No. 135, Jaffrey, Fred J. Lawrence, master.

Excelsior No. 136, Marlow, James Burnap, master.

The charter members of these Granges add 47 to the number, and information from various sources indicates a sufficient gain since September 30 to warrant the estimate of 7,000 members at this date.

Several towns have been canvassed, and there is full assurance of several new Granges in the near future.

Amoskeag Grange No. 3, Manchester, still stands at the head of the Grange column with 221 members.

Other Granges with a membership of 100 and over are as follows:

Pembroke No. 111, Pembroke, Samuel D. Robinson, master, 200 members.

Harmony No. 99, Sanbornton, H. J. L. Bodwell, master, 171 members.

Narragansett No. 46, Bedford, John S. Gove, master, 169 members.

Thornton No. 31, Merrimack, George A. Bean, master, 158 members.

Uncanoonuc No. 40, Goffstown, Gilman Woodbury, master, 146 members.

Souhegan No. 10, Amherst, George F. Hill, master, 145 members.

Warner No. 90, Warner, Frank Sargent, master, 132 members.

Granite No. 7, Milford, Nelson H. Brown, master, 131 members.

McClary No. 102, Epsom, George Sanders, master, 121 members.

Hollis No. 12, Hollis, Charles E. Hardy, master, 114 members.

Capital No. 113, Concord, Albert Saltmarsh, master, 112 members.

Fruitdale No. 106, Mason, O. A. Hamblett, master, 110 members.

Friendship No. 110, Northfield, Jason Foss, master, 108 members.

Loudon Surprise No. 121, Loudon, Abram Batchelder, master, 105 members.

Sixty-four Granges report a membership of 50 or over.

The largest net gain made by any Grange in the State is made by Grafton Star Grange No. 60, of Hanover, which has made a net gain of 46, wanting only one of doubling the membership. McClary Grange No. 102, of Epsom, makes a net gain of 43; Granite Lake No. 115, of Nelson, 39; Fruitdale No. 106, of Mason, 26; and Deerfield No. 74, of Deerfield, 25.

Of the Granges organized within the year, Cheshire Grange No. 131, of Keene, has a membership of 89, and Massabesic No. 127, of Auburn, 73.

The four Granges making largest cash returns are located as follows : Manchester, \$63.36 ; Pembroke, \$59.96 ; Epsom: \$59.38 ; Sanbornton, \$53.02.

POMONA GRANGES.

September 30, 1887, there were three Pomona Granges in the State with a total membership of 820. During the year ending September 30, 1888, three new Pomona Granges have been organized, one of which, Belknap County, was organized November 9, 1887, and reported at the last session.

Northern New Hampshire Pomona Grange No. 5, George Farr master, has been organized at Littleton with 36 charter members.

Cheshire County Pomona Grange No. 6, T. H. White master, has been organized at Keene with 102 charter members.

The membership of the Pomona Granges, September 30, 1888, was as follows :

Hillsborough County No. 1, Granville Parker master, reports a membership of 238.

Eastern New Hampshire No. 2, Frank P. Wentworth master, reports a membership of 352.

Merrimack County No. 3, Warren Abbott master, reports a membership of 358.

Belknap County No. 4, H. B. Holman master, reports a membership of 110.

Northern New Hampshire No. 5, George Farr master, reports a membership of 81.

Cheshire County No. 6, Thomas H. White master, reports a membership of 152. Making a total membership of 1,262.

Cash receipts for the year have been as follows :

Cash returns, December quarter, 1887 . . .	\$492.08
Cash returns, March quarter, 1888 . . .	577.06
Cash returns, June quarter, 1888 . . .	655.34
Cash returns, September quarter, 1888 . . .	565.22

Making total receipts, as per treasurer's report \$2,289.70

The receipts for the year ending September 30, 1887, from subordinate Granges were \$2,001.86, making a net gain in fees and dues over the previous year of \$287.84.

The office expenses for the year have been :

Postage	\$93.36
Printing and stationery	97.05
Office expenses, supplies, and incidentals	67.53
	<hr/>
Total expenditures	\$257.94

An itemized exhibit of the foregoing receipts and expenditures has been submitted to your executive committee, duly audited by them, and approved.

The following contributions have been received for the

DARDEN MEMORIAL FUND.

Monadnock Grange, Dublin	\$5.00
Uncanoonuc " Goffstown	10.00
Blazing Star " Danbury	5.00
Nashua " Nashua	1.81
Loudon Surprise " Loudon	7.00
Harmony " Sanbornton	10.00
Granite " Milford	10.00
Lawrence " Belmont	3.00
Bartlett " Salisbury	5.00
Lebanon " Lebanon	5.00
Pembroke " Pembroke	12.00
John Hancock " Hancock	3.75
Cheshire " Keene	3.80
Ammonoosuc " Bath	5.00
Londonderry " Londonderry	5.00
Wolf Hill " Deering	2.50
Thornton " Merrimack	10.00
Daniel Webster " Webster	2.00
Chichester " Chichester	3.00
New Hampton " New Hampton	3.50
Highland Lake " East Andover	10.00

Mont Calm Grange,	Enfield	\$10.00
Stark	" Dunbarton	3.00
Amoskeag	" Manchester	20.00
Bradford	" Bradford	5.00
Capital	" Concord	5.00
Bow Lake	" Strafford	3.00
Advance	" Wilton	5.00
Sunapee Lake	" Newbury	2.00
Bear Hill	" Henniker	5.00
Bear Hill	" Henniker, Children	5.00
Nutfield	" Derry	3.20
C. M. Johnson,	Alstead	1.00
J. M. Connor and others, of	Hopkinton	1.00
Grafton Star Grange,	Hanover	10.00
Claremont	" Claremont	1.94
Eureka	" Grafton	5.00
Marlborough	" Marlborough	2.84
White Mountain	" Littleton	5.00
Forest	" Stoddard	3.00
Pemigewasset	" Hill	2.00
Total amount		<hr/> \$220.34

One thousand copies of the journal of proceedings of the 12th annual session have been printed and distributed, and occasional circulars in the interest of the order have been issued. Numerous subordinate Granges have been visited during the year and meetings of the Pomona Granges attended whenever possible.

In closing this report we only wish to say that during the past year the order in New Hampshire has been increased by the organization of more new Granges, by a larger net gain in membership, and by larger cash returns than in any previous year of its history. The agriculture of New Hampshire is receiving more attention than ever before, in some respects is showing improvement, and the Grange is an important factor in producing the result. There is every indication that its work and influence

will be more widely extended in the future even than it is to-day, until its principles are not only effectual in elevating the farmer's position, but also in purifying the social and political atmosphere of our whole State.

LIST OF SUBORDINATE GRANGES AND THEIR OFFICERS.

	NAME.	LOCATION.	MASTER.	LECTURER.	SECRETARY.
1	Gilman.	Exeter.	John J. Bell.	C. W. Treadwell.	John D. Lyman.
4	Merrimack River.	Canterbury.	Charles W. Emery.	George P. Morrill.	Miss Bertha M. Gale.
5	Lovell.	Washington.	Mark F. Hill.	Mrs. Clara M. Hurd.	Miss Jennie S. Hill.
7	Granite.	Milford.	Herman A. Peabody.	Mrs. Eliza A. Talbot.	George W. Colburn.
8	Sullivan.	Newport.	Willis P. Wright.	George F. Whitney.	George W. Hurd.
9	Claremont.	Claremont.	Erastus Read.	Mrs. Marcia E. Lull.	Dudley T. Chase.
10	Souhegan.	Amherst.	George F. Hill.	Mrs. Viola R. Doolge.	Henry C. Day.
11	Hudson.	Hudson.	George H. Abbott.	Aldon E. Cummings.	Kinball Webster.
12	Hollis.	Hollis.	Wilber P. Marshall.	Mrs. Nellie M. Hardy.	Mrs. A. A. Paul.
13	Nashua.	Nashua.	M. O. Lund.	H. E. Priest.	Mrs. S. Jennie Tolles.
18	Pinnacle.	Lyndeborough.	David G. Dickey.	Mrs. S. K. Swinington.	John H. Goodrich.
19	Cold River.	Acworth.	C. M. Johnson.	Miss Lora E. Newton.	Charles E. Murdough.
20	Advance.	Wilton.	James Sheldon.	Willis H. Abbott.	Mrs. J. B. Abbott.
21	Prospect.	Mont Vernon.	William H. Kendall.	Miss Emma F. Trow.	George A. McQuestion.
23	Greenfield.	Greenfield.	John Fletcher.	Mrs. John Fletcher.	Mrs. A. W. Savage.
25	Cornish.	Cornish.	Lemuel Martindall.	Mrs. William E. Westgate.	Mrs. Albert Weld.
31	Thornton.	Merrimack.	George A. Bean.	E. E. Parker.	Mrs. E. E. Parker.
32	Oak Hill.	Francestown.	Edson H. Patch.	Miss Annie S. Clark.	Miss Emma L. Pettie.
33	John Hancock.	Hancock.	Charles H. Dutton.	Fred M. Davis.	George W. Goodhue.
34	Miller.	Temple.	Herbert O. Hadley.	William P. Bacon.	George F. Barker.
35	Peterborough.	Peterborough.	Charles W. Hunter.	Mrs. Isaac Hadley.	Mrs. T. N. Hunt.
36	Watatic.	New Ipswich.	F. W. Trichard.	O. H. Perry.	Charles A. Preston.
37	Nutfield.	Derry.	J. W. White.	Frank R. Morse.	Mrs. Lizzie F. Hill.
39	Henniker.	Henniker.	Joseph Wood.	Miss Ada M. Carr.	Mrs. Charlotte A. Wilkins.
40	Uncanoonuc.	Goffstown.	Sylvanus B. Gilchrist.	William U. Carlton.	George B. Stevens.
41	Wolf Hill.	Deering.	James W. Ellsworth.	Miss Mary A. Crosby.	Mrs. Mary Peaslee.
42	Stark.	Dunbarton.	Aaron C. Barnard.	Mrs. Sarah Caldwell.	Mrs. N. H. Barnard.

44	Londonderry.	Daniel G. Annis.	Miss Mary A. Wiley.	Charles H. Fling.
46	Bedford.	Charles P. Farley.	Edward W. Stevens.	Mrs. Addie E. Hull.
48	Lancaster.	William R. Stockwell.	Mrs. Louise E. Hartford.	Fred Clough.
49	Monroe.	Nathan T. Bolton.	Fred Blodgett.	Richard H. Moore.
50	White Mountain.	C. W. Betell.	George E. Walker.	Leslie F. Bean.
51	Winnipisogee.	George F. Smith.	Fred H. Smith.	Charles W. Neal.
52	Mount Belknap.	Thomas E. Hunt.	Mrs. Mary P. Jewett.	Miss Clara B. Gove.
53	Joe English.	George P. Bennett.	Miss S. O. Marden.	H. H. J. Read.
54	Wyoming.	Charles J. Hadley.	E. Harry Deuborn.	Eben L. Paige.
55	Ammonoosuc.	A. P. Prescott.	S. H. Chamberlain.	Mrs. Ann E. Prescott.
56	Union.	James M. Connor.	Mrs. J. E. Saltmarsh.	Mrs. James M. Connor.
58	Bradford.	E. H. Hadley.	Mrs. Harvey Colby.	Mrs. Helen H. W. Felch.
60	Grafton Star.	C. H. Pettee.	Miss Christie Warden.	J. M. Fuller.
62	Morning Star.	John F. Elliott.	Fred B. Palmer.	George S. Mayo.
63	Valley.	Fred W. Flint.	Mrs. Lizzie R. Jones.	Mrs. Lizzie S. Bailey.
65	Crown Point.	Dana R. Berry.	Mrs. Dana R. Berry.	Charles W. Foss.
68	Mascoma.	David Noyes.	Mrs. Julia A. Daniels.	Charles W. Jones.
69	Eureka.	Albert B. Stevens.	George S. Barney.	Miss Lizzie A. Fowler.
70	Mont Calm.	Charles McDaniel.	Mrs. Ella R. McElwain.	Amos M. Bryant.
71	Blazing Star.	John D. Danforth.	Mrs. Josie C. Sargent.	Frank L. Taylor.
72	Indian River.	Edwin M. Allen.	C. O. Barney.	A. M. Shackford.
74	Deerfield.	Arthur M. Chase.	John C. Stevens.	William F. Chase.
77	Landaff.	John E. Hall.	Mrs. John E. Hall.	W. C. Clarke.
79	Olive Branch.	John P. Blodgett.	Hiram M. Worthley.	Albert E. Moore.
80	Bow Lake.	Daniel S. Woodman.	Miss Sarah J. Critchett.	Charles W. Brewster.
81	Cochecho.	Martin L. Lord.	Carrie E. Varney.	Annie L. Varney.
83	Spaford.	Warren W. Farr.	John L. Streeter.	Herman G. Smith.
86	Rochester.	F. P. Wentworth.	Miss Mary W. Hall.	Dudley B. Waldron.
87	Kearsarge.	John M. Carr.	Miss Emma L. Collins.	Mrs. E. D. Downs.
88	Highland Lake.	W. D. Tuttle.	Mrs. N. J. Bachelier.	Mrs. F. H. Flanders.
90	Warner.	Edward C. Cole.	Stephen C. Pattee.	John F. Jewell.
91	Sutton.	Charles A. Fowler.	Mrs. L. M. Putney.	Robert L. Smiley.
93	Campton.	William Wallace.	Thomas S. Pulsifer.	Mrs. A. H. Merrill.
94	Ezekiel Webster.	John C. Morrison.	Charles N. Clough.	William P. Abbott.

LIST OF SUBORDINATE GRANGES AND THEIR OFFICERS -- *Continued.*

NO.	NAME.	LOCATION.	MASTER.	LECTURER.	SECRETARY.
95	New London.	New London.	Baxter Gay.	N. C. Todd.	Charlton W. Woodbury.
96	Forest.	Stoddard.	William H. Chase.	Mrs. Abbie O. Chase.	Miss Ida M. Chapin.
97	Catamount.	Pittsfield.	George R. Drake.	Miss Effie M. Davis.	Mrs. Jennie G. C. Drake.
98	Antrim.	Antrim.	Ira P. Hutchinson.	Frank Bailey.	George T. Buchanan.
99	Harmony.	Sanbornton.	Thomas O. Taylor.	Alfred H. Colby.	George C. Ward.
100	Daniel Webster.	Webster.	William W. Burbank.	George T. Sanborn.	Miss Ida L. Sweatt.
101	Crystal Lake.	Gilmanton.	James W. Cogswell.	John H. Collins.	Mrs. Lucie E. Dorman.
102	McClary.	Epsom.	George Sanders, Jr.	John H. Dolbeer.	Miss Mary E. Dolbeer.
103	Monadnock.	Dublin.	Warren L. Fiske.	Mrs. Fred C. Gowling.	Mrs. Sarah F. Townsend.
104	Bartlett.	Salisbury.	George E. Fellows.	Miss Millie G. Keyes.	J. W. Folsom.
105	Silver Lake.	Harrisville.	Fred C. Farwell.	Samuel D. Bemis.	Mrs. Mary E. Parker.
106	Fruitdale.	Mason.	O. A. Hamblett.	William McLean.	Miss Nellie T. Thompson.
107	Pemigewasset.	Hill.	Silas P. Thompson.	Frank R. Woodward.	Joseph W. Favor.
108	Franklin.	Franklin.	J. H. Rowell.	Mrs. Lizzie A. Brockway.	R. E. Bean.
109	Rumford.	East Concord.	John E. Frye.	Samuel Davis, Jr.	Miss Annie M. White.
110	Friendship.	Northfield.	Lowell M. French.	Miss Carrie Glines.	Miss Kate Forest.
111	Pembroke.	Pembroke.	Samuel D. Robinson.	Charles E. Gile.	Henry E. Payson.
112	Sunapee Lake.	Newbury.	Daniel M. Perkins.	Richard T. Muzzey.	Nathan B. Bly.
113	Capital.	Concord.	William P. Ballard.	H. H. Metcalf.	Miss Lizzie F. Stokes.
114	Golden Rod.	Swansey.	Z. G. Taft.	Mrs. Ella H. G. Taft.	Mrs. Lucy Stone.
115	Granite Lake.	Nelson.	Frank K. Jewett.	Albert Davis.	Cummings B. McClure.
116	Mt. Washington.	Whitefield.	Minot B. Dodge.	Mrs. I. A. Goodwin.	Fred A. Shute.
117	Lawrence.	Belmont.	Francis A. Badger.	Mrs. M. M. Woodward.	Ernest K. Piper.
118	Marlborough.	Marlborough.	Almon C. Mason.	John R. Farnum.	Miss Marion L. Farnum.
119	Barnstead.	Barnstead.	Charles F. Davis.	Fred P. Fletcher.	Mrs. Calista M. Downes.
120	Laconia.	Laconia.	Everett L. Hadley.	Mrs. Eva Z. Sargent.	L. J. Severance.
121	Loudon Surprise.	Loudon.	Rinaldo B. Foster.	William W. Cate.	Frank A. Brown.
122	Seamell.	Durham.	Lucien Thompson.	Miss Mary A. Burnham.	Mrs. D. T. Woodman.

123	New Hampton.	New Hampton.	William Child.	William Wallace.	A. K. Bugbee.
124	Star King.	Jefferson.	Lyman D. Kenison.	James Caverly.	Miss Hattie E. Hicks.
125	Walpole.	Walpole.	Alvin Dwinell.	Edwin Guild.	Albert C. Dickey.
126	Lebanon.	Lebanon.	John S. Freeman.	John T. Breck.	Miss Carrie L. Lowe.
127	Massabesic.	Auburn.	Henry C. Sanborn.	Henry P. Wood.	Mrs. Louise C. Emery.
128	Lake Shore.	Wolfeborough.	F. W. Edgerly.	G. B. Clark.	A. B. Rust.
129	Ashuelot.	Gilsum.	Oscar Willson.	Mrs. Carrie M. Kidder.	W. S. Mansfield.
130	Ossipee Mountain.	Tuftonborough.	C. E. Ham.	C. H. Wiggins.	H. F. Hodgdon.
131	Cheshire.	Keene.	S. F. Merrill.	Mrs. Ella J. Farwell.	Ellery E. Kugler.
132	Chichester.	Chichester.	Oliver Drake.	Nathan D. Fitts.	F. E. Towle.
133	Wantastiquet.	Hinsdale.	Sylvester O. Davenport.	Adalbert J. Temple.	L. Birney Lamson.
134	Marshall P. Wilder.	Kindge.	Jason S. Perry.	Sherman J. Swallow.	Martin L. Goldhard.
135	Jaffrey.	Jaffrey.	Fred J. Laurence.	Edwin R. Spaulding.	Mrs. G. O. Turner.
136	Exelsior.	Marlow.	James Burnap.	Perley E. Fox.	Mrs. Perley E. Fox.
137	Riverside.	Dalton.	Bert A. Taylor.	Mrs. Fitta B. Cushman.	Mrs. Nellie J. Bell.
138	Great Meadow.	Westmoreland.	George J. Bennett.	William J. Reed.	William Bill, Jr.
139	Arlington.	Winchester.	Charles J. Fosgate.	Harvey Jewell.	S. M. Morse.
140	Freedom.	Freedom.	Alonzo Towle.	S. A. McDaniel.	C. H. Andrews.
141	Amoskeag.	Manchester.	Adam Dickey.	E. J. Burnham.	E. J. Flanders.

LIST OF POMONA GRANGES AND THEIR OFFICERS.

NO.	NAME.	LOCATION.	MASTER.	LECTURER.	SECRETARY.
1	Hillsboro' County.	Milford.	Howard E. Priest.	William W. Howard.	D. G. Roberts.
2	Eastern N. H.	Bow Lake, Str'fd.	Frank P. Wentworth.	George K. Drake.	Mrs. Jennie G. C. Drake.
3	Merrimack County.	Concord.	Charles W. Emery.	H. H. Metcalf.	Mrs. Caroline F. Emery.
4	Pelnap County.	Laconia.	Howard B. Holman.	H. J. L. Bodwell.	Mrs. M. J. Holman.
5	Northern N. H.	Littleton.	George Farr.	James H. Derby.	A. P. Prescott.
6	Cheshire County.	Keene.	Thomas H. White.	Rev. George W. Patten.	C. W. Farwell.

AGRICULTURAL FAIRS.

NEW HAMPSHIRE GRANGE STATE FAIR.

The third annual exhibition of the New Hampshire Grange State Fair Association was held in the beautiful park at Tilton, provided by the generosity of Hon. C. E. Tilton, on September 12, 13, and 14, 1888.

On account of the storm in the early morning and the threatening weather which followed for several hours on the opening day, the number of visitors was not large, and the work of arranging exhibits was somewhat retarded. During the day, however, all the preparations were completed, and the most successful fair held by the association was in smooth running order. The president delivered the opening address early in the afternoon, followed by races on the track by yearling and two-year-old colts.

In numbers and excellence the show in the cattle department was one of which every New Hampshire man may be proud, and which would put the stamp of success on the fair were there no other features of especial merit. The herds of Hon. W. F. Daniell, ex-Governor Cheney, Samuel Hodgson, the State Industrial School, John B. Sanborn, Ward Parker & Son, Hon. G. A. Wason, and William Neal, with many more equally fine animals by other exhibitors, made the display a notable one.

Lovers of good horseflesh found a day's delight provided by the many entries. As fine a lot of young horses as was ever gathered within a fair ground fence in this State was there. The center of attraction was Mr. Foster's Viking, with a record of 2.20 $\frac{1}{4}$, while Col. John B. Clarke's Mambrino Wilkes and

Dr. F. L. Gerald's Glencoe Wilkes found admirers equally as strong as those of the \$15,000 beauty. The rivalry among owners of Wilkes colts found expression in an unusually fine showing of these pets of horse fanciers. The purses attracted several horses well known in trotting circles, and altogether the stables were remarkably interesting.

In the sheep, swine, and poultry departments were a large number of exhibits and many fine specimens, while the old church building was completely filled with the exhibition of ladies' needlework, paintings, dairy products, and canned goods.

The patronage of the second day insured the financial success of the fair, and more people passed through the park gates than on any single day in the history of the Grange Fair Association. The weather was favorable for the assembling of a crowd, although a brief shower between three and four o'clock in the afternoon and a sudden change to a lower temperature interfered somewhat with their comfort. The number of people who visited Tilton in teams was something remarkable, and some were known to have driven thirty miles. A larger collection of teams than was to be seen outside the inclosure at noon has not been known in this vicinity for years. The twelve thousand people were of the better class of our citizens, largely from the farms and villages, and the order was perfect. The formal exercises of the day began when the distinguished guests were escorted from the village to the park by the Tilton band and the Manchester Cadets. At two o'clock speaking at the stand attracted a vast audience. James E. Shepard, of New London, president of the association, acted as master of ceremonies, and brief addresses were made by Gov. C. H. Sawyer, Congressman L. F. McKinney, Hon. David H. Goodell, of Antrim, Hon. Charles H. Amsden, of Penacook, Dr. Edgar L. Carr, of Pittsfield, Hon. Hiram A. Tuttle, of Pittsfield, Col. Thomas Cogswell, of Gilmanton, Col. Joseph Wentworth, of Concord, Hon. Moses Humphrey, of Concord, president of the State Board of Agriculture, and Charles McDaniel, of Springfield, master of the State Grange. The speeches were bright and appropriate, and considerable fun was had at the expense of the political nominees.

Promptly at the appointed hour, 3 P. M., Mr. Foster's beautiful stallion Viking was exhibited, and trotted the fastest mile ever made on this track, — first quarter, 35 seconds; half, 1.10½; three quarters, 1.46; mile, 2.22. Col. John B. Clarke's famous stallion Mambrino Wilkes and a show of his stock won much admiration as they were driven around the track, and a pretty brush between the horse and one of his most promising colts, Joe, three years, owned by J. H. Wiggin, of Manchester, closed the exhibition. Later, Joe, driven by A. J. Rollins, trotted a half mile in 1.17½.

A game of base ball between the Franklins and Pittsfields was sharply contested, and was watched with great interest by several thousand people. It was won by the latter.

The races on the track the second day were contested by three and four year old colts, and attracted the attention of the visitors in a marked degree.

The fair closed Friday with a perfect autumn day and an attendance of between two and three thousand people. There were two events on the track, one between gentlemen's driving horses, and one free-for-all.

Between the heats an event not down on the program, but one which afforded a great deal of amusement, took place. It was a slow race, the winner being the horse which trotted a half mile the slowest. The appearance upon the track of a typical old New England farmer, sitting unconcernedly in a heavy Democrat wagon, across the seat of which was a well-worn buffalo robe, was the signal for cheers from those who recognized the man and knew what his steed was capable of doing in the way of going slow. Two other teams started. At the word "Go," or rather as soon as he could start after the word was given, the winner settled into a jog trot, which was kept up throughout the half mile. It was the slowest trotting ever seen on a New Hampshire track, and the crowd laughed and cheered almost every rod of the half mile. The half mile was made in 9½ minutes, with Asa Osgood, of Tilton, winner.

The success of the fair was unparalleled and most gratifying, not only to the officers and members of the fair association but to all who are interested in New Hampshire farms and farmers.

The management was admirable, and every promise kept with exhibitors and the public generally. The State Grange Fair is now an established institution, and has advanced rapidly each year towards first place among the fairs of New England.

Following is a complete list of the premiums awarded in all departments of the fair :

DIVISION 1. — JERSEY STOCK.

HERD PREMIUMS.

First, Warren F. Daniell, Franklin.

BULLS.

Two years and under three. — 1st, Warren F. Daniell, Franklin.

Under one year. — 1st, Warren F. Daniell, Franklin ; 2d, N. J. Bachelder, East Andover.

COWS AND HEIFERS.

Four years and over. — 1st, Warren F. Daniell, Franklin.

Three years and under four. — 1st, Warren F. Daniell, Franklin ; 2d, Warren F. Daniell, Franklin.

Two years and under three. — 1st, Warren F. Daniell, Franklin.

One year and under two. — 1st, Warren F. Daniell, Franklin ; 2d, Warren F. Daniell, Franklin.

Under one year. — 1st, Warren F. Daniell, Franklin ; 2d, Warren F. Daniell, Franklin.

DIVISION 2. — HOLSTEIN STOCK.

HERD PREMIUM.

First, P. C. Cheney, Manchester.

BULLS.

Three years and over. — 1st, Herbert B. French, Gaza ; 2d, C. J. White, Andover.

Two years and under three. — 1st, J. F. Bryant, Tilton.

One year and under two. — 1st, P. C. Cheney, Manchester ; 2d, G. W. Goddard, Greenville.

Under one year. — 1st, H. B. French, Gaza ; 2d, H. B. French, Gaza.

COWS AND HEIFERS.

Four years and over. — 1st, P. C. Cheney, Manchester ; 2d, Herbert B. French, Gaza.

Three years and under four. — 1st, P. C. Cheney, Manchester ; 2d, J. F. Bryant, Tilton.

Two years and under three. — 1st, P. C. Cheney, Manchester ; 2d, P. C. Cheney, Manchester.

One year and under two. — 1st, Herbert B. French, Gaza ; 2d, G. W. Goddard, Greenville.

Under one year. — 1st, P. C. Cheney, Manchester ; 2d, P. C. Cheney, Manchester.

DIVISION 4. — SHORT-HORN STOCK.

HERD PREMIUM.

First, Sam Hodgson, Meredith.

BULLS.

Three years and over. — 1st, Sam Hodgson, Meredith ; 2d, J. C. Ray, Manchester.

Two years and under three. — 1st, Sam Hodgson, Meredith.

One year and under two. — 1st, Sam Hodgson, Meredith.

Under one year. — 1st, Walter C. Wells, Belmont.

COWS AND HEIFERS.

Four years and over. — 1st, Sam Hodgson, Meredith ; 2d, Sam Hodgson, Meredith.

Three years and under four. — 1st, Walter C. Wells, Belmont ; 2d, William Neal, Meredith.

Two years and under three. — 1st, Sam Hodgson, Meredith ; 2d, Sam Hodgson, Meredith.

One year and under two. — 1st, Sam Hodgson, Meredith ; 2d, Sam Hodgson, Meredith.

Under one year. — 1st, Sam Hodgson, Meredith ; 2d, Walter C. Wells, Belmont.

DIVISION 5.—DEVON STOCK.

HERD PREMIUMS.

First, George A. Wason, New Boston; 2d, J. B. Sanborn, East Concord.

BULLS.

Three years and over. — 1st, J. B. Sanborn, East Concord; 2d, Ward Parker & Son, Reed's Ferry.

Two years and under three. — 1st, J. B. Sanborn, East Concord.

One year and under two. — 1st, George A. Wason, New Boston; 2d, C. W. Whitcher, Tilton.

Under one year. — 1st, J. B. Sanborn, East Concord; 2d, Ward Parker & Son, Reed's Ferry.

COWS AND HEIFERS.

Four years and over. — 1st, George A. Wason, New Boston; 2d, J. B. Sanborn, East Concord.

Three years and under four. — 1st, J. B. Sanborn, East Concord; 2d, George A. Wason, New Boston.

Two years and under three. — 1st, Ward Parker & Son, Reed's Ferry; 2d, J. B. Sanborn, East Concord.

One year and under two.—1st, J. B. Sanborn, East Concord; 2d, George A. Wason, New Boston.

Under one year. — 1st, Ward Parker & Son, Reed's Ferry; 2d, George A. Wason, New Boston.

DIVISION 6.—HEREFORD STOCK.

BULLS.

Three years and over. — 1st, Thomas W. Taylor, Sanbornton; 2d, Seth Quimby, Hooksett.

Under one year. — 1st, Seth Quimby, Hooksett.

COWS AND HEIFERS.

Four years and over. — 1st, Seth Quimby, Hooksett; 2d, Thomas W. Taylor, Sanbornton.

Three years and under four. — 1st, Thomas W. Taylor, Sanbornton.

Two years and under three. — 1st, Seth Quimby, Hooksett ; 2d, Thomas W. Taylor, Sanbornton.

One year and under two. — 1st, Thomas W. Taylor, Sanbornton ; 2d, Thomas W. Taylor, Sanbornton.

Under one year. — 1st, Thomas W. Taylor, Sanbornton ; 2d, Seth Quimby, Hooksett.

DIVISION 7. — GUERNSEY STOCK.

HEIFERS.

Two years and under three. — 1st, G. W. Goddard, Greenville.

DIVISION 8. — SWISS STOCK.

HERD PREMIUM.

First, Sam Hodgson, Meredith.

BULLS.

Two years and under three. — 1st, Sam Hodgson, Meredith.

One year and under two. — 1st, E. L. Hadley, Laconia.

Under one year. — 1st, Sam Hodgson, Meredith.

COWS AND HEIFERS.

Four years and over. — 1st, Sam Hodgson, Meredith ; 2d, Sam Hodgson, Meredith.

Three years and under four. — 1st, Sam Hodgson, Meredith.

Two years and under three. — 1st, Sam Hodgson, Meredith.

One year and under two. — 1st, Sam Hodgson, Meredith.

Under one year. — 1st, Sam Hodgson, Meredith ; 2d, Sam Hodgson, Meredith.

DIVISION 10. — GRADE OR CROSS-BREED.

HERD PREMIUMS.

First, J. C. Ray, Manchester (milk) ; 1st, J. C. Ray, Manchester (stock) ; 2d, G. W. Goddard, Greenville ; 1st, A. H. Colby, Tilton (butter).

BULLS.

Two years and over. — 1st, John B. Yeaton, Northfield.

COWS AND HEIFERS.

Four years and over. — 1st, Walter C. Wells, Belmont; 2d, A. H. Colby, Tilton.

Three years and under four. — 1st, J. B. Sanborn, East Concord; 2d, J. C. Ray, Manchester.

Two years and under three. — 1st, A. H. Colby, Tilton; 2d, J. C. Ray, Manchester.

One year and under two. — 1st, Frank S. Hersey, Tilton; 2d, W. M. Sanborn, Webster.

Under one year. — 1st, Jonathan M. Taylor, Sanbornton; 2d, A. H. Colby, Tilton.

BEST COW, ANY AGE.

First, J. C. Ray, Manchester; 2d, G. W. Goddard, Greenville.

DIVISION 11.—GRANGE TEAMS.

OX TEAM.

Four years and over. — 1st, G. H. Wadleigh, Tilton, for Harmony Grange; 2d, Warren Tripp, Short Falls, for McClary Grange.

STEER TEAM.

Under four years and over two. — 1st, G. H. Wadleigh, Tilton, for Harmony Grange; 2d, George F. Weeks, Tilton, for Friendship Grange.

DIVISION 12.—WORKING OXEN AND STEERS.

Five years and over. — 1st, Ward Parker & Son, Reed's Ferry; 2d, S. F. & W. M. Wadleigh, Meredith Village.

Four years and under five. — 1st, S. F. & W. M. Wadleigh, Meredith Village; 2d, Charles Dutton, Short Falls.

Three years and under four. — 1st, S. F. & W. M. Wadleigh, Meredith Village; 2d, J. M. Taylor, Sanbornton.

Two years and under three. — 1st, Jonathan M. Taylor, Sanbornton; 2d, John Shaw, West Salisbury.

One year and under two. — 1st, Ward Parker & Son, Reed's Ferry; 2d, William Neal, Meredith.

STEER CALVES.

First, Fred C. Fife, Short Falls ; 2d, P. C. Clough, Canterbury.

TRAINED STEERS.

Two years and over. — 1st, A. M. Powers, Grafton ; 2d, Wm. F. Payne, Sanbornton.

Under two years and over one. — 1st, A. M. Powers, Grafton.

Under one year. — 1st, Jonathan M. Taylor, Sanbornton.

DIVISION 13. — PULLING OXEN.

Over 6 feet 10 inches. — 1st, J. C. Morrison, Boscawen ; 2d, A. H. Colby, Tilton.

Under 6 feet 10 inches. — 1st, Peter K. Gile, Tilton.

DIVISION 15. — STALLIONS, ROADSTERS.

Five years and over. — 1st, F. L. Gerald, Laconia ; 2d, John B. Clarke, Manchester.

Four years and under five. — 1st, Sam Hodgson, Meredith ; 2d, James N. Charles, East Concord.

Three years and under four. — 1st, Frank J. Thomas, North Sanbornton.

Two years and under three. — 1st, Sam Hodgson, Meredith ; 2d, Isaac W. Bushey, Concord.

One year and under two. — 1st, S. Kidder Boyce, Penacook.

Under one year. — 1st, Warren F. Daniell, Franklin ; 2d, P. C. Cheney, Manchester.

DIVISION 16. — STALLIONS FOR ALL WORK.

Five years and over. — 1st, C. J. White & Son, Andover ; 2d, Charles Smith, Tilton.

Three years and under four. — 1st, Melvin Hall, Auburn.

DIVISION 17. — BROOD MARES.

First, Warren F. Daniell, Franklin ; 2d, George H. Brown, Tilton.

DIVISION 18. — GELDINGS, MARES, AND FILLIES.

Five years and over. — 1st, J. P. Kimball, Canterbury ; 2d, P. C. Cheney, Manchester.

Four years and under five. — 1st, E. W. Muzzey, Franklin Falls ; 2d, B. A. McKerley, Loudon.

Three years and under four. — 1st, G. F. Weeks, Tilton.

Two years and under three. — 1st, A. C. Gage, Penacook ; 2d, Lester Prescott, Canterbury.

One year and under two. — 1st, C. C. Kenrick, Franklin ; 2d, P. C. Cheney, Manchester.

Under one year. — 1st, Warren F. Daniell, Franklin ; 2d, G. F. Weeks, Tilton.

DIVISION 19. — BROOD MARES, STANDARD BRED.

First, J. C. Morrison, Boscawen.

DIVISION 20. — GELDINGS, MARES, AND FILLIES, STANDARD BRED.

Four years and under five. — 1st, P. C. Cheney, Manchester.

One year and under two. — 1st, J. C. Morrison, Boscawen ; 2d, P. C. Cheney, Manchester ; 3d, A. R. Ayers, Concord.

Under one year. — 1st, J. C. Morrison, Boscawen.

DIVISION 21. — GENTLEMEN'S DRIVING HORSES.

1st, George W. Peverly, Canterbury ; 2d, Sam Hodgson, Merdith.

DIVISION 22. — WALKING HORSES.

1st, J. B. Sanborn, East Concord ; 2d, J. W. Kilborn, Webster.

DIVISION 23. — MATCHED DRIVING HORSES.

1st, Warren F. Daniell, Franklin ; 2d, W. D. Tuttle, East Andover.

DIVISION 24. — DRAFT HORSES.

1st, Warren F. Daniell, Franklin ; 2d, B. F. Varney, Penacook.

DIVISION 25. — SHEEP DEPARTMENT.

LONG-WOOLED SHEEP. — RAMS.

Under one year. — 1st, G. W. Goddard, Greenville ; 2d, G. W. Goddard, Greenville.

DIVISION 26. — SOUTHDOWNS AND ALL OTHER DOWNS.

RAMS.

Two years and over. — 1st, J. B. Sanborn, East Concord ; 2d, William Neal, Meredith.

One year and under two. — 1st, Ward Parker & Son, Reed's Ferry ; 2d, J. B. Sanborn, East Concord.

Under one year. — 1st, J. B. Sanborn, East Concord ; 2d, William Neal, Meredith.

EWES.

Two years and over. — 1st, John B. Yeaton, Northfield ; 2d, Ward Parker & Son, Reed's Ferry.

One year and under two. — 1st, Ward Parker & Son, Reed's Ferry.

Under one year. — 1st, Ward Parker & Son, Reed's Ferry ; 2d, J. B. Sanborn, East Concord.

DIVISION 27. — MERINOS.

RAMS.

Two years and over. — 1st, W. M. Sanborn, Webster ; 2d, W. M. Sanborn, Webster.

One year and under two. — 1st, W. M. Sanborn, Webster ; 2d, C. C. Wadleigh, Webster.

Under one year. — 1st, W. M. Sanborn, Webster ; 2d, C. C. Wadleigh, Webster.

EWES.

Two years and over. — 1st, W. M. Sanborn, Webster ; 2d, W. M. Sanborn, Webster.

One year and under two. — 1st, W. M. Sanborn, Webster ; 2d, C. C. Wadleigh, Webster.

Under one year. — 1st, W. M. Sanborn, Webster ; 2d, C. C. Wadleigh, Webster.

DIVISION 28. — GRADES.

RAMS.

Two years and over. — 1st, A. H. Colby, Tilton.

Under one year. — 1st, Ward Parker & Son, Reed's Ferry ;
2d, H. B. Sanborn, Webster.

EWES.

Under one year. — 1st, A. H. Colby, Tilton ; 2d, Ward Parker & Son, Reed's Ferry.

DIVISION 29. — SWINE.

BERKSHIRE.

Boar of any age. — 1st, G. W. Goddard, Greenville.

Brood sow of any age. — 1st, G. W. Goddard, Greenville.

Pigs over two months and under six. — 1st, G. W. Goddard,
Greenville ; 2d, Warren F. Daniell, Franklin.

CHESTER WHITE.

Boar of any age. — 1st, George H. Brown, Tilton.

Brood sow any age. — 1st, George H. Brown, Tilton ; 2d, E.
W. Muzzey, Franklin Falls.

Pigs over two months and under six. — 1st, George H. Brown,
Tilton.

Litter suckling pigs. — 1st, E. W. Muzzey, Franklin Falls.

JERSEY RED.

Pigs over two months old and under six. — 1st, C. W.
Whitcher, Tilton.

YORKSHIRE.

Brood sow of any age. — 1st, G. W. Goddard, Greenville.

Pigs over two months and under six. — 1st, G. W. Goddard,
Greenville.

Litter suckling pigs. — 1st, G. W. Goddard, Greenville.

SMALL YORKSHIRE.

Boar of any age. — 1st, J. C. Ray, Manchester.

Brood sow of any age. — 1st, G. W. Goddard, Greenville.

CHESHIRE.

Boar of any age. — 1st, W. H. Griffin, Auburn.

Brood sow of any age. — 1st, W. H. Griffin, Auburn.

Pigs over two months and under six. — 1st, W. H. Griffin, Auburn.

Litter suckling pigs. — 1st, W. H. Griffin, Auburn.

DIVISION 30. — FOWLS AND CHICKS.

Largest and best exhibit. — 1st, H. W. Hillson, East Concord.

LIGHT BRAHMAS.

1st, H. W. Hillson, East Concord ; 2d, H. W. Hillson, East Concord.

CHICKS.

1st, H. W. Hillson, East Concord.

PARTRIDGE COCHINS.

2d, F. O. Melvin, Bradford.

BUFF COCHINS.

1st, Mrs. A. L. Dearborn, Franklin Falls.

PLYMOUTH ROCKS.

1st, H. W. Hillson, East Concord ; 2d, H. W. Hillson, East Concord.

CHICKS.

1st, H. W. Hillson, East Concord ; 2d, H. W. Hillson, East Concord.

WYANDOTTES.

1st, F. O. Melvin, Bradford.

CHICKS.

1st, F. O. Melvin, Bradford.

GAMES.

1st, H. S. Lull, Warner.

BANTAMS — BLACK-BREASTED GAME.

1st, H. W. Hillson, East Concord.

PEKIN BANTAMS.

1st, Warren F. Daniell, Franklin.

PEKIN DUCKS.

1st, H. W. Hillson, East Concord ; 2d, T. C. Sweatt, Webster.

GUINEA FOWLS.

1st, William Neal, Meredith.

DIVISION 31. — GRAINS AND SEEDS.

12-ROWED CORN.

1st, T. C. Sweatt, Webster ; 2d, S. F. & W. H. Wadleigh, Meredith.

8-ROWED CORN.

1st, Walter C. Wells, Belmont ; 2d, C. F. Davis, Barnstead ; 3d, J. L. Davis, Barnstead.

POP-CORN.

1st, J. N. Sanborn, Sanbornton.

SPRING WHEAT.

1st, E. B. Merrill, East Andover ; 2d, H. B. Holman, Belmont.

OATS.

1st, C. W. Bedell, Littleton ; 2d, G. W. Goddard, Greenville.

BARLEY.

1st, S. M. Harvell, Amherst ; 2d, Otis S. Sanborn, East Tilton.

BUCKWHEAT.

1st, G. W. Goddard, Greenville ; 2d, Charles B. Flanders, Concord.

INDIA WHEAT.

1st, G. W. Goddard, Greenville ; 2d, E. B. Merrill, East Andover.

WINTER RYE.

1st, Morrill Moore, Tilton ; 2d, Morrill Moore, Tilton.

TIMOTHY GRASS SEED.

1st, G. W. Goddard, Greenville.

BEANS.

1st, Myron C. Foster, Canterbury.

LARGE FIELD BEANS.

1st, John W. Farr, Littleton ; 2d, E. B. Merrill, East Andover.

SMALL FIELD BEANS.

1st, Otis S. Sanborn, East Tilton ; 2d, E. B. Merrill, East Andover.

FIELD PEAS.

1st, C. W. Bedell, Littleton ; 2d, G. W. Goddard, Greenville.

WINTER WHEAT.

1st, G. W. Goddard, Greenville.

DIVISION 32.—FRUITS.

APPLES.

General exhibit. — 1st, George Simons, Weare ; 2d, N. J. Bachelder, East Andover.

Five Varieties Fall Apples. — 1st, J. M. Connor, Hopkinton ; 2d, W. S. Mansfield, Gilsum.

Five Varieties Winter Apples. — 1st, C. C. Shaw, Milford ; 2d, H. B. Sanborn, Webster.

Red Astrachan. — 1st, J. W. Folsom, Salisbury ; 2d, George Simons, Weare.

Early Harvest. — 1st, J. N. Sanborn, Sanbornton ; 2d, George Simons, Weare.

Tetofsky. — 1st, John W. Farr, Littleton ; 2d, George Simons, Weare.

Sweet Bough. — 1st, William Neal, Meredith ; 2d, T. D. Little, Salisbury.

Porters. — 1st, George F. Weeks, Tilton ; 2d, V. M. Sanborn, Franklin Falls.

Twenty Ounce. — 1st, George Simons, Weare ; 2d, A. Woodbury, Goffstown.

Gravenstein. — 1st, George Simons, Weare ; 2d, D. G. Roberts, Goffstown.

Maiden's Blush. — 1st, D. G. Roberts, Goffstown ; 2d, A. M. Barnes, Tilton.

Fameuse. — 1st, J. N. Sanborn, Sanbornton ; 2d, George Simons, Weare.

Blue Pearmain. — 1st, Dana Maxfield, Belmont ; 2d, George Simons, Weare.

Granite Beauty. — 1st, George Simons, Weare ; 2d, J. N. Sanborn, Sanbornton.

Lady's Sweet. — 1st, George Simons, Weare.

Talman Sweet. — 1st, A. H. Colby, Tilton ; 2d, V. M. Sanborn, Franklin Falls.

Duchess of Oldenburg. — 1st, Henry Moore, Goffstown ; 2d, C. W. Bedell, Littleton.

Williams's Favorite. — 1st, J. M. Connor, Hopkinton ; 2d, George Simons, Weare.

Baldwin. — 1st, J. W. Little, Salisbury ; 2d, George Simons, Weare.

Rhode Island Greening. — 1st, George Simons, Weare ; 2d, J. N. Sanborn, Sanbornton.

Northern Spy. — 1st, J. N. Sanborn, Sanbornton ; 2d, A. H. Colby, Tilton.

Peck's Pleasant. — 1st, George Simons, Weare ; 2d, Luther E. Page, Gilmanton.

Hubbardston Nonesuch. — 1st, C. C. Shaw, Milford ; 2d, G. W. Goddard, Greenville.

King of Tompkins County. — 1st, G. W. Goddard, Greenville ; 2d, Granville Parker, Amherst.

Roxbury Russet. — 1st, George Simons, Weare ; 2d, A. H. Colby, Tilton.

Nodhead. — 1st, J. W. Folsom, Salisbury ; 2d, J. N. Sanborn, Sanbornton.

GRAPES.

Best exhibit. — 1st, J. N. Sanborn, Sanbornton ; 2d, G. W. Goddard, Greenville.

Concord. — 1st, George Whitaker, Mason ; 2d, G. W. Goddard, Greenville.

Delaware. — 1st, George Whitaker, Mason ; 2d, J. N. Sanborn, Sanbornton.

Hartford Prolific. — 1st, George Whitaker, Mason.

Moore's Early. — 1st, G. W. Goddard, Greenville.

Salem. — 1st, J. N. Sanborn, Sanbornton.

Worden. — 1st, J. N. Sanborn, Sanbornton ; 2d, G. W. Goddard, Greenville.

Martha. — 1st, J. N. Sanborn, Sanbornton.

Amber. — 1st, J. N. Sanborn, Sanbornton.

Brighton. — 1st, G. W. Goddard, Greenville.

PEACHES.

Best exhibit of not less than four varieties. — 1st, G. W. Goddard, Greenville.

Crawford's Early. — 1st, G. W. Goddard, Greenville.

Crawford's Late. — 1st, G. W. Goddard, Greenville.

Excelsior. — 1st, G. W. Goddard, Greenville.

Old Mixon. — 1st, G. W. Goddard, Greenville.

Red Rareripec. — 1st, G. W. Goddard, Greenville.

President. — 1st, G. W. Goddard, Greenville.

PLUMS.

Best exhibit not less than four varieties. — 1st, George Whitaker, Mason ; 2d, J. N. Sanborn, Sanbornton.

Imperial Gage. — 1st, George Whitaker, Mason ; 2d, J. N. Sanborn, Sanbornton.

Lombard. — 1st, George Whitaker, Mason ; 2d, J. N. Sanborn, Sanbornton.

Jefferson. — 1st, J. N. Sanborn, Sanbornton.

Bradshaw. — 1st, George Whitaker, Mason ; 2d, J. N. Sanborn, Sanbornton.

Niagara. — 1st, George Simons, Weare ; 2d, J. N. Sanborn, Sanbornton.

Duane's Purple. — 1st, George Whitaker, Mason.

PEARS.

Best exhibit not less than eight varieties. — 1st, F. P. Wentworth, Rochester ; 2d, C. C. Shaw, Milford.

Bartlett. — 1st, George Whitaker, Mason ; 2d, F. P. Wentworth, Rochester.

Doyenne Boussock. — 1st, George Simons, Weare.

Beurre d'Anjou. — 1st, C. C. Shaw, Milford ; 2d, George Whitaker, Mason.

Wadleigh. — 1st, A. H. Colby, Tilton.

Louise Bonne de Jersey. — 1st, C. C. Shaw, Milford ; 2d, F. P. Wentworth, Rochester.

Mount Vernon. — 1st, F. P. Wentworth, Rochester ; 2d, C. C. Shaw, Milford.

Onondaga. — 1st, F. P. Wentworth, Rochester ; 2d, C. C. Shaw, Milford.

Seckel. — 1st, C. C. Shaw, Milford ; 2d, George Simons, Weare.

Sheldon. — 1st, George Simons, Weare ; 2d, F. P. Wentworth, Rochester.

Dana's Hovey. — 1st, F. P. Wentworth, Rochester.

Urbaniste. — 1st, C. C. Shaw, Milford ; 2d, F. P. Wentworth, Rochester.

Lawrence. — 1st, F. P. Wentworth, Rochester ; 2d, C. C. Shaw, Milford.

Clapp's Favorite. — 1st, W. D. Tuttle, East Andover ; 2d, J. F. Jewell, Warner.

DIVISION 33. — VEGETABLES.

BEETS.

Blood Turnip. — 1st, S. W. Knowles, Belmont ; 2d, T. C. Sweatt, Webster.

Mangel-Wurzel. — 1st, A. L. West, Belmont.

Sugar. — 1st, P. C. Clough, Canterbury.

CABBAGE.

Large Flat Dutch. — 1st, G. W. Goddard, Greenville.

Drumhead Savoy. — 1st, Hugh Tallant, East Concord.

Red. — 1st, Hugh Tallant, East Concord.

Savoy. — 1st, G. W. Goddard, Greenville.

Deephead. — 1st, G. W. Goddard, Greenville.

CARROTS.

Short Horn. — 1st, T. C. Sweatt, Webster ; 2d, Myron C. Foster, Canterbury.

Long Orange. — 1st, Hugh Tallant, East Concord ; 2d, T. C. Sweatt, Webster.

Danvers. — 1st, G. W. Goddard, Greenville.

CAULIFLOWER.

Three best specimens. — 1st, Hugh Tallant, East Concord.

CELERY.

Three roots Boston Market. — 1st, Hugh Tallant, East Concord ; 2d, J. L. Kelley, Franklin Falls.

Best three roots of any other named variety. — 1st, Hugh Tallant, East Concord.

SWEET CORN.

Marblehead. — 1st, G. W. Goddard, Greenville.

Corey. — 1st, Myron C. Foster, Canterbury ; 2d, Roscoe E. Prescott, Tilton.

Mammoth. — 1st, D. E. Goodhue, Pembroke.

CRANBERRIES.

First, Ward Parker & Son, Reed's Ferry ; 2d, Morrill Moore, Tilton.

CUCUMBERS.

First, A. H. Colby, Tilton ; 2d, J. N. Sanborn, Sanbornton.

MELONS.

Water. — 1st, Dana D. Maxfield, Belmont.

ONIONS.

Red. — 1st, Walter C. Wells, Belmont; 2d, A. H. Colby, Tilton.

Silver Skin. — 1st, Walter C. Wells, Belmont; 2d, G. W. Goddard, Greenville.

Yellow Danvers. — 1st, Walter C. Wells, Belmont; 2d, Walter C. Wells, Belmont.

Long White. — 1st, Hugh Tallant, East Concord.

POTATOES.

Early Rose. — 1st, Willie W. French, Tilton; 2d, Daniel S. Clay, Tilton.

Beauty of Hebron. — 1st, George F. Weeks, Tilton; 2d, Leslie Bean, Littleton.

White Elephant. — 1st, C. W. Knowles, Belmont; 2d, E. B. Merrill, Andover.

Extra Early Vermont. — 1st, George B. Lane, Sanbornton; 2d, P. C. Clough, Canterbury.

Clark's No. 1. — 1st, George B. Lane, Sanbornton; 2d, G. H. Wadleigh, Tilton.

Pearl of Savoy. — 1st, Henry Moore, Goffstown; 2d, G. W. Goddard, Greenville.

Burbank Seedling. — 1st, Otis S. Sanborn, Sanbornton; 2d, A. H. Colby, Tilton.

Early Sunrise. — 1st, George E. Fellows, Salisbury; 2d, Henry Moore, Goffstown.

Victor. — 1st, G. W. Goddard, Greenville.

White Star. — 1st, George E. Fellows, Salisbury; 2d, P. C. Clough, Canterbury.

Early Ohio. — 1st, G. W. Goddard, Greenville.

Boston Market. — 1st, R. N. Whittemore, Manchester.

OTHER NAMED VARIETIES.

Empire State. — 1st, A. H. Colby, Tilton.

Dakota Red. — 1st, J. L. Kelley, Franklin Falls.

- Rural Blush. — 1st, T. C. Sweatt, Webster.
Soudan. — 1st, J. J. Prescott, Tilton.
Queen of Valley. — 1st, D. G. Roberts, Goffstown.
Highland Red. — 1st, Luther E. Page, Gilmanton.
Belle. — 1st, G. E. Fellows, Salisbury.
Early Prolific. — 1st, D. P. Webster, East Tilton.
White Bush. — 1st, Miss M. A. Robertson, Northfield.

TOMATOES.

- Beauty. — 1st, D. G. Roberts, Goffstown ; 2d, G. W. Goddard, Greenville.
Livingston's Perfection. — 1st, Charles Downing ; 2d, T. C. Sweatt, Webster.
Trophy. — 1st, D. P. Webster, East Tilton.
Boston Market. — 1st, D. P. Webster, East Tilton ; 2d, Charles Downing.
Serue. — 1st, D. P. Webster, East Tilton ; 2d, T. C. Sweatt, Webster.

TURNIPS.

- English White or Yellow. — 1st, P. C. Clough, Canterbury.
Yellow Swede. — 1st, A. H. Colby, Tilton.
• Purple Top Munich. — 1st, P. C. Clough, Canterbury.

PUMPKINS.

- Field Pumpkin. — 1st, C. J. Esty.
Sweet Pumpkin. — 1st, H. B. Sanborn, Webster ; 2d, J. M. Connor, Hopkinton.

PEPPERS.

- First, D. S. Clay, Tilton ; 2d, Mrs. C. S. Gilman, Belmont.

SQUASHES.

- Hubbard. — 1st, R. N. Whittemore, Manchester ; 2d, E. Hartshorn, Manchester.
Bay State. — 1st, A. H. Colby, Tilton.
Marrow. — 1st, Hugh Tallant, East Concord ; 2d, D. P. Webster, East Tilton.
Turban. — 1st, M. C. Foster, Canterbury ; 2d, A. H. Colby, Tilton.

DIVISION 34. — DAIRY.

Butter. — 1st, G. H. Brown, Tilton ; 2d, John Barnard, Hopkinton ; 3d, J. M. Connor, Hopkinton ; 4th, J. W. Farr, Littleton.

Creamery butter. — 1st, Wallace Burleigh, Cold Brook Creamery, Franklin ; 2d, S. P. Chesley, Oyster River Creamery, Durham.

CHEESE.

1st, T. S. Pulsifer, Campton ; 2d, Mrs. L. A. Moore, Tilton ; 3d, T. S. Pulsifer, Campton.

BEEES AT WORK.

1st, Timothy Stevens, Bedford.

HONEY IN COMB.

1st, Ward Parker & Son, Merrimack ; 2d, J. W. Farr, Littleton.

MAPLE SUGAR.

1st, C. E. Murdough, South Acworth ; 2d, T. S. Pulsifer, Campton.

MAPLE SYRUP.

1st, Mrs. C. W. Whitcher, Tilton ; 2d, C. E. Murdough, South Acworth.

DIVISION 35. — HOME-MADE BREAD.

White bread. — 1st, Mrs. Kate F. Hill, Tilton ; 2d, Mrs. T. W. Taylor, Sanbornton ; 3d, Mrs. Annie L. Dearborn, Franklin Falls.

Brown bread. — 1st, Mrs. Annie L. Dearborn, Franklin Falls ; 2d, Mrs. S. D. Weeks, Sanbornton ; 3d, Miss A. M. Barnes, Tilton.

Graham bread. — 1st, Miss A. M. Barnes, Tilton ; 2d, Mrs. Isaiah Piper, Belmont.

DIVISION 36. — CANNED FRUITS, PRESERVES, ETC.

Best exhibit. — 1st, T. C. Sweatt, Webster.

Canned peaches. — 1st, Mrs. F. H. Flanders, East Andover.

- Canned plums. — 1st, Mrs. Kate F. Hill, Tilton.
Canned raspberries. — 1st, T. C. Sweatt, Webster.
Canned cherries. — 1st, Mrs. Kate F. Hill, Tilton.
Canned tomatoes. — 1st, Mrs. Abbie G. Durgin, Tilton.
Canned blackberries. — 1st, Mrs. Kate F. Hill, Tilton.
Preserved quinces. — 1st, Mrs. Cyrene K. Sanborn, Sanbornton.
Preserved apples. — 1st, T. C. Sweatt, Webster.
Preserved plums. — 1st, Mrs. D. S. Clay, Tilton.
Preserved pears. — 1st, Mrs. Cyrene K. Sanborn, Sanbornton.
Preserved strawberries. — 1st, T. C. Sweatt, Webster.
Preserved raspberries. — 1st, T. C. Sweatt, Webster.
Preserved currants. — 1st, Mrs. Kate F. Hill, Tilton.
Preserved cherries. — 1st, T. C. Sweatt, Webster.
Preserved blackberries. — 1st, Mrs. D. S. Clay, Tilton.
Assorted pickles. — 1st, Mrs. G. F. Weeks, Tilton.
Tomato catsup. — 1st, Mrs. Abbie G. Durgin, Tilton.
Quince jelly. — 1st, Mrs. Cyrene K. Sanborn, Sanbornton.
Apple jelly. — 1st, Mrs. Annie L. Dearborn, Franklin Falls.
Grape jelly. — 1st, Mrs. Cyrene K. Sanborn, Sanbornton.
Currant jelly. — 1st, T. C. Sweatt, Webster.
Blackberry jelly. — 1st, T. C. Sweatt, Webster.

DIVISION 39. — MISCELLANEOUS.

- Best family liniment. — 1st, W. D. Tuttle, East Andover.
Best horse liniment. — 1st, W. D. Tuttle, East Andover.

DIVISION 40. — NATURAL HISTORY.

- Indian relics. — 1st, Mrs. C. R. Allen, Littleton.
Collection of birds. — 1st, Hattie A. Yeaton, Northfield.

DIVISION 41. — FINE ARTS AND OILS.

- Animals from life. — 1st, Mrs. L. F. Bean, Littleton.
Flowers. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Mrs. G. W. Morrill.
Landscape. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Mrs. G. W. Morrill.
Oil portrait. — 1st, F. L. Gerald, Laconia.

Painting on silk or satin. — 1st, Mrs. Kate F. Hill, Tilton ; 2d, Mrs. Isaiah Piper, Belmont.

Painting on plush. — 1st, Mrs. J. W. English, Littleton ; 2d, Mrs. L. F. Bean, Littleton.

Crayon portrait. — 1st, Albert Saltmarsh, Concord ; 2d, Nettie C. Emery, East Andover.

Display of paintings. — 1st, J. M. Sargent, Belmont ; 2d, A. L. West, Belmont.

Display of etchings. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Mrs. L. F. Bean, Littleton.

DIVISION 42. — NEEDLEWORK.

Cotton embroidery. — 1st, Mrs. E. C. Goodall, Sanbornton ; 2d, Miss Ella Dalton, Belmont.

Worsted embroidery. — 1st, Mrs. Sarah L. Davis, Center Barnstead ; 2d, H. H. Thompson, Belmont.

Silk embroidery. — 1st, Mrs. Kate C. Hill, Belmont ; 2d, Mrs. Nellie Powers, Belmont.

Sofa cushion. — 1st, Vira J. Hammond, Dunbarton ; 2d, N. A. Clough, Belmont.

Embroidered table cover. — 1st, Mrs. W. P. Fletcher, Tilton ; 2d, Mrs. Sarah L. Davis, Center Barnstead.

Chenille embroidery. — 1st, Mrs. J. P. Cilley, Belmont ; 2d, Kate F. Hill, Tilton.

Lace work. — 1st, Flora E. Plummer, Belmont ; 2d, Annie M. Tripp, Short Falls.

Crochet work. — 1st, Mary A. Rowell, Franklin ; 2d, Bertha H. French, Tilton.

Hand-knit work. — 1st, Belle W. Gile, Tilton ; 2d, Mrs. D. Maxfield, Belmont.

Sofa afghan. — 1st, Mrs. L. M. French, Tilton ; 2d, Ann M. Barnes, Tilton.

Fir pillow. — 1st, Mrs. Kate Fletcher, Tilton ; 2d, Ann M. Barnes, Tilton.

Laundry bag. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Mrs. Isaiah Piper, Belmont.

Crazy silk quilt. — 1st, Mrs. Kate F. Hill, Tilton ; 2d, Mrs. Harrison Weeks, Gilford.

White knit quilt. — 1st, Jennie M. Huse, Barnstead ; 2d, Lucy E. Osgood, Sanbornton.

Worsted quilt. — 1st, Mrs. F. S. Spencer, Tilton ; 2d, Alice E. Moore, Goffstown.

Cotton patchwork quilt. — 1st, Mrs. H. H. Platts, Reed's Ferry ; 2d, Mrs. Daniel Crane, Littleton.

Hand bag. — 1st, Nellie Powers, Belmont ; 2d, Mrs. C. W. Bedell, Littleton.

Infant's basket. — 1st, Mrs. R. E. Smith, Sanbornton.

Mexican work. — 1st, Alice Bullard, Manchester ; 2d, Kate F. Hill, Tilton.

Rag carpet. — 1st, J. L. Kelley, Franklin Falls ; 2d, Cora B. Durgin, East Andover.

Braided rug. — 1st, Mrs. Harrison Weeks, Gilford ; 2d, Mrs. C. R. Allen, Littleton.

Drawn rug. — 1st, Annie E. Ayers, Barnstead ; 2d, Mrs. Sarah L. Davis, Center Barnstead.

Specimen darning. — 1st, Miss Hattie M. Hodgdon, Contoocook.

Hand-knit socks. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Almeda H. Kimball, Pembroke.

Tidy. — 1st, Mrs. Sarah L. Davis, Center Barnstead ; 2d, Mrs. George Abbott, Littleton.

Pillow shams. — 1st, Mrs. Luther E. Page, Gilmanton ; 2d, Mrs. F. S. Spencer, Tilton.

Display fancy work. — 1st, Mrs. C. W. Bedell, Littleton ; 2d, Mrs. Sarah L. Davis, Center Barnstead.

Outline work. — 1st, Miss Edna S. Cole, East Andover.

DIVISION 43.—PLANTS AND FLOWERS.

Largest and best exhibit. — 1st, Mrs. F. S. Spencer, Tilton ; 2d, Mary J. Hersey, East Andover.

Special premium. — 1st, Ann M. Barnes, Tilton.

Cut flowers. — 1st, Mrs. F. S. Spencer, Tilton ; 2d, Mrs. John Perkins, Sanbornton.

Parlor bouquet. — 1st, Edna S. Cole, East Andover ; 2d, Mrs. George Dowst, Short Falls.

Native flowers. — 1st, Belle W. Gile, Tilton ; 2d, Bertha A. French, Tilton.

Gladioli. — 1st, Ida L. Sweatt, Webster.

Asters. — 1st, Mary A. Rowell, Franklin.

Petunias. — 1st, Carlie S. Sanborn, Tilton.

Geraniums. — 1st, Mrs. L. S. Abbott, Tilton.

Dahlias. — 1st, Belle W. Gile, Tilton.

DIVISION 44. — COLLECTIVE PREMIUMS.

The Grange whose members were awarded the largest number of premiums in proportion to membership. — 1st, Harmony Grange No. 99, Sanbornton ; 2d, Friendship Grange No. 110, Northfield ; 3d, Fruitdale Grange No. 106, Mason.

The Grange whose members were awarded the largest amount of cash premiums in proportion to membership. — 1st, Harmony Grange No. 99, Sanbornton ; 2d, Franklin Grange No. 108, Franklin ; 3d, Rumford Grange No. 109, East Concord.

DIVISION 45. — SPECIAL PREMIUMS.

Gold medal valued at \$25 offered by the "Jersey Bulletin," of Indianapolis, Ind., for the best five-pound batch of pure Jersey butter. — J. G. Tallant, East Concord.

SPEED DEPARTMENT.

Foals of 1887. — W. F. Daniell, Franklin, Dexter ; 2d, J. C. Morrison, Boscawen, Camilla ; 3d, C. J. Chamberlain, Northfield, Crystal.

Foals of 1886. — 1st, C. N. Gordon, Bristol, Falcon Jr. ; 2d, Sam Hodgson, Meredith, Freeland ; 3d and 4th, Lester Prescott, Boscawen, Lottie P., and A. M. Gage, Penacook, Lucy Wilkes.

Foals of 1885. — 1st, C. J. Chamberlain, Northfield, Mischief ; 2d, E. M. Pitman, Laconia, Belle R. ; 3d, C. C. Kenrick, Franklin, Henry Wilkes.

Foals of 1884. — 1st, J. N. Charles, East Concord, Gladstone ; 2d, Sam Hodgson, Meredith, Meredith Boy ; 3d, E. W. Muzzey, Franklin, Grover Wilkes.

Gentlemen's driving class. — 1st, C. A. Kimball, Grafton, Azro ; 2d, A. L. Cilley, Andover, Eagle Boy ; 3d, Sam Hodgson, Meredith, Annie ; 4th, G. W. Peverly, Canterbury, Dandy Boy.

Free-for-all. — 1st, C. C. Kenrick, Franklin, C. C. K. ; 2d, E. M. Pitman, Laconia, Almont ; 3d, J. P. Kimball, Canterbury, Gypsy K.

AGRICULTURAL FAIRS IN NEW HAMPSHIRE, 1888.

NAME.	PLACE.	PRESIDENT.	SECRETARY.	DATE.
New Hampshire Agricultural.	Tilton.	Warren Brown.	Aaron Young.	September 12-14.
New Hampshire Grange.	Warner.	J. E. Shepard.	N. J. Bachelder.	September 19-20.
Kearsarge.	Lancaster.	William E. Chandler.	Daniel Bean.	September 25-27.
Coös and Essex.	Laconia.	G. M. Stevens.	I. W. Quimby.	September 4-6.
Belknap.	Plymouth.	Sam Hodgson.	True E. Prescott.	September 25-27.
Grafton County.	Canaan.	Moody Merrill.	S. D. Baker.	October 2-4.
Mascoma Valley.	Colebrook.	William Hall.	C. O. Barney.	September 26-27.
Upper Coös and Essex.	Whitefield.	F. P. Covell.	C. A. Hutchinson.	October 3-4.
Grafton and Coös Grange.	Keene.	L. T. Hazen.	L. J. Miner.	September 20-22.
Cheshire County Union.	Pittsfield.	M. J. Sherman.	H. S. Couillard.	October 9-10.
Suncook Valley.	Grantham.	G. R. Drake.	W. J. Mansfield.	September 25.
Springfield and Grantham.	Rochester.	K. D. Smith.	J. H. Johnson.	September 25-28.
Rochester.	Sanbornton.	L. B. Hathon.	E. L. Kimball.	October 3.
Sanbornton.	Peterborough.	C. H. Cutler.	H. J. L. Bodwell.	September 27-28.
Elm Park.	South Hampton.	W. K. Davey.	W. M. Townsend.	October 2-4.
South Hampton.	New London.	E. P. Burpee.	J. J. Sawyer.	October 3.
New London.	Sandwich.	J. E. Beede.	E. Farwell.	October 3.
Sandwich.	Newport.	R. E. Bartlett.	C. B. Hoyt.	October 9.
Newport.	Hancock.	C. H. Duncan.	W. H. Perry.	October 3-4.
Hancock.	Rindge.	H. W. Wellington.	H. W. Brooks.	September 20.
Rindge.			H. W. Fletcher.	October 3.

CREAMERIES IN NEW HAMPSHIRE, 1888.

NAME.	PLACE.	PRESIDENT.	SYSTEM.	POUNDS OF BUTTER MADE IN 1888.
Contoocook Valley.	Henniker.	G. H. Dodge.	Cooley.	71,474
Cold Brook.	Franklin.	Wallace Burleigh.	Cooley.	43,894
Cold River.	Alstead.	M. F. Bragg.	Cooley.	25,000
Center Strafford.	Strafford.	C. H. Foss.	Separator.	26,316
Elm Farm.	Contoocook.	D. C. Tucker.	Cooley.	14,000
Hillside.	Francetown.	T. E. Bixby.	Cooley.	68,003
Hanover.	Hanover.	A. H. Warden.	Separator.	105,448
Haverhill.	Haverhill.	S. P. Carbee.	Separator.	69,782
Island View.	Whitefield.	L. T. Hazen.	Separator.	92,000
Keene.	Keene.	C. G. Britton.	Cooley.	27,000
Lynne.	Lynne.	L. D. Warren.	Separator.	22,622
Lovell.	Washington.	Cornelius Cooledge.	Cooley.	18,438
Oyster River.	Durham.	W. S. Meserve.	Cooley.	27,726
Piermont.	Piermont.	L. M. Robie.	Separator.	109,800
Sugar River.	Goshen.	Bela Graves.	Cooley.	40,000
Suncook Valley.	Epsom.	Warren Tripp.	Separator.	31,200
White Mountain.	Littleton.	Arthur F. Dow.	Cooley.	45,000
West Lebanon.	Lebanon.	C. H. Dana.	Separator.	66,680
West Canaan.	Canaan.	L. F. Webster.	Separator.	630
D. Whiting & Son.*	Wilton.			
Peterborough.*	Peterborough.			
Cornish.†	Cornish.			
Grantham.*	Grantham.			

* Not reported.

† Commenced business in September.

REPORT

OF THE

BOARD OF CATTLE COMMISSIONERS

FOR THE YEAR ENDING MAY 1, 1889.

To His Excellency the Governor :

Although the Board of Cattle Commissioners has frequently been called upon during the year in relation to diseases among domestic animals, no serious outbreak of any contagious or infectious disease has occurred. Early in October the attention of the Board was called to a herd of cattle upon the farm of H. B. Sanders, of Sharon. A representative of the Board visited the premises of Mr. Sanders, October 6, and the following report was made :

The herd was driven from Massachusetts to the pasture of Mr. Sanders in May, and arrived in apparently healthy condition. May 24th one of the animals was found dead in the pasture. Early in September two cows aborted, and were taken to Massachusetts by the owner in a wagon, much reduced in flesh and very weak. The remaining animals also became reduced in flesh, coughed to a considerable extent, and manifested some difficulty in breathing. They were taken to the barn by Mr. Sanders and well cared for. This was about two weeks previous to our visit, and we found the animals somewhat improved.

The symptoms indicate no cause for alarm among the farmers and stock-raisers of the vicinity. The disease is evidently a lung affection, but not of the pleuro type. In cases of this kind it is always best to isolate the diseased animals from the herd, and give them shelter from storms and rough weather. If

they become very much reduced in flesh, a stimulant in the form of alcohol will enable the animals to withstand the disease to some extent. The abortion of the two cows may have been caused by the weakness of the animals from the disease. Animals should not be returned to the herd until fully recovered, and the buildings where they are kept should be thoroughly cleaned and disinfected.

The following is the report of an investigation at Merrimack, ordered by the Board :

CONCORD, N. H., December 20, 1888.

To the Board of Cattle Commissioners of the State of New Hampshire :

SIRS, — By request of the Board, Wednesday, December 19, 1888, I went to Reed's Ferry in the town of Merrimack, county of Hillsborough, for the purpose of ascertaining the cause of death of a number of cattle in that town. I was met at the depot by one of the selectmen of said town, and was driven to the farm of one John French. Said French, under oath, made the following statement :

"Am a farmer, 58 years of age, and have lived in Merrimack for the past 35 years. This season had a herd of cattle numbering eleven, ages from four years to calf born this year. I had a field of frost-bitten corn left standing, about four acres. On or about November 17, all my cattle were turned in this field during the day, taken up nights, and put in barn. Did not feed much in barn, for thought they got enough during the day in the field. They were in this field for three weeks. Saturday, December 8, on coming to barn at night, I noticed that one ox, four years old, seemed sick, refused to eat or drink, frothed at the mouth, was weak, and inclined to lie down. He died Monday, December 10. Sunday, December 9, the other ox and a heifer were taken in about the same way. The heifer died Wednesday, ox Friday. Another heifer, taken Tuesday, December 11, died next day. A yearling, taken Wednesday, December 12, died Friday. Another heifer, taken Thursday, December 13. This one seemed to have chills, in other respects symptoms about same as others. This one died Tuesday, December 18 [day before my visit]. Two others had shown signs of not being well, but had got over it, while one, a calf, was taken sick that morning, but had noticed that it had not taken its feed very well for two days previous."

This was the only one I saw sick, did not eat, frothed at mouth as if nauseated, was in pain, lay down, kept moaning and looking around to abdomen. All the dead animals were seen save the first ox, which had been buried. Examination of the second ox that died and of the heifer that died the day before my arrival was made, one of the selectmen doing the work under my direction, in the presence of French and others. In both cases we found the mucous and muscular coats of the stomach in a high state of inflammation, and all compartments of the stomach were full of partly digested hay and some corn. The other organs were sound and healthy. The intestines were empty.

My opinion is, that all died from acute gastritis, caused by eating too freely of the frost-bitten corn, as it was shown that they all lived upon it for three weeks.

Very respectfully,

GEORGE COOK, M. D.

Two oxen owned by N. C. Twombly, M. D., of Center Strafford, died about January 1, and the following report was made to the Board by the owner :

THE SICK OXEN OF N. C. TWOMBLY, M. D., CENTER STRAFFORD, N. H.—PLEURO-PNEUMONIA.

These oxen I have owned two years. They came from Farmington, N. H., were five years old, and were all the oxen or horned cattle that I owned, and were of the Hereford breed.

The first one was taken sick about the 15th of December, 1888, was sick about fifteen days, and then he died. The external symptoms were, cough about all the time, loss of flesh, and dulness over the lungs on percussion, anorexia from the first, and great febrile symptoms till the last of December, when he died. The fever was so great that it would fill the barn with the effluvium. I had hard work to take care of him and give him the treatment that I desired to give, which was of the same kind that I would give a person for pneumonia. I made no post-mortem on this one, being indisposed at the time, which prevented it.

The second ox was taken sick the 1st of January, and died about the 15th of the month. He took the disease from the first one. He, like the first, had cough about all the time, loss of flesh, dulness over the lungs on percussion, and great febrile symptoms, with anorexia from the first day of the disease.

A post-mortem was held on the last one, which died about January 15, 1889. The lesions of the lung consisted in distention of a portion of the interlobular connective tissue with lymph, infarction of some of the lobules, and the pleural sack inflamed and greatly thickened, with adhesions in several different places to the lobules. Some false membrane, and hepatization of some of the lobules. The bronchia, on being incised, showed a white substance about the consistency of milk. The different lobules gave evidence of different degrees of inflammation. There was no evidence of tuberculosis or tumors of any kind.

These cattle were in a large field all the autumn, where the grass was extra nice, and by the side of the main road, over which hundreds of cattle from Northern New York, Vermont, and Canada were driven by every few days to market. Sometimes they would get their heads together through the fence, and possibly this might be the way by which my cattle came to have the disease. I cannot divine any other way by which they could have got it.

This post-mortem I made myself, and made it as thoroughly as I possibly could with every convenience at hand to help in the work.

N. C. TWOMBLY, M. D.

Complaint was made to the Board that a serious contagious disease existed in the herd of cattle owned by George M. Batchelder, of Wilton, and at the request of the Board an inspector of the Bureau of Animal Industry made an examination and reported as follows :

WILTON, N. H., February 10, 1889.

I. A. Watson, M. D. :

DEAR DOCTOR, — Have spent yesterday afternoon and to-day at George M. Batchelder's examining his herd of thirty cows and some half dozen young stock. Purchased one cow for post-mortem, which I held to-day. Find tuberculosis. From the history I learn that during something over a year Mr. B. has lost, or had killed, seven cows. These all have shown lesions identical with those witnessed to-day, though in many instances to a greater extent. In the cow killed to-day tubercles were found in the lungs, pleura, mesentery, peritoneum, liver, kidneys, ovaries, udder, etc. Upon examination of remainder of herd, I do not hesitate to pronounce fully seventy-five per cent as affected. I shall report this to Dr. Salmon, chief of the bureau, and ask that he take some action in the matter. If the bureau cannot do this, cannot your state board act? If nothing better can be done, why not have the entire herd shipped to market, and killed under the supervision of some competent inspector? A few of the carcasses might be fit for food.

Sincerely yours,

C. B. MICHENER, V. S.,

Inspector of Bureau of Animal Industry.

1,779 BROADWAY, NEW YORK.

Under date of February 28, the following letter was sent :

STATE OF NEW HAMPSHIRE.

OFFICE OF BOARD OF CATTLE COMMISSIONERS,

CONCORD, N. H., February 28, 1889.

D. E. Salmon, V. S., Chief of Bureau of Animal Industry, Washington, D. C. :

DEAR DOCTOR, — Several days since, at the request of the Board of Cattle Commissioners, your department sent Inspector Michener to this State to investigate a disease that appeared in a herd of cattle owned by G. H. Batchelder, of Wilton. Inspector Michener reported to us that the disease was tuberculosis, and stated that out of a herd of about thirty cattle, seventy-five per cent or more were probably affected. A few days subsequent to Inspector Michener's inspection I visited the herd and found his statements correct so far as I could verify them. I am not able, however, to state that seventy-five

per cent of the herd are affected, but presume the inspector's report is correct. I did not make a physical examination of the cattle. It seems to me that the matter is very important, and that some action should be taken. Under the laws of New Hampshire we are powerless to take such steps as the exigency demands. Is there any provision whereby the government can take this matter in hand? If so, such action is respectfully requested.

Very truly yours,

IRVING A. WATSON,

President of Board of Cattle Commissioners.

The following answer was received :

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY,

WASHINGTON, D. C., March 2, 1889.

Dr. Irving A. Watson, Secretary of State Board of Health, Concord, N. H. :

DEAR DOCTOR, — Referring to your favor of the 28th ult., asking if there is any provision by which the government can take charge of tuberculosis in your State, I would say that no such authority has ever been conferred upon any of the government departments by Congress. Our appropriation is limited to the one disease pleuro-pneumonia, so far as efforts for eradication and prevention are concerned. For that reason we are unable to do anything except in pleuro-pneumonia.

Very respectfully,

D. E. SALMON,

Chief of Bureau.

On April 23 the Board was notified of a serious contagious disease in a herd of cattle near Cold River, and, as the call seemed urgent, the department at Washington was immediately notified, with a request that an inspector be sent at once. Inspector Michener was sent to make an examination, and we herewith publish the report received of the same :

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY,

WASHINGTON, D. C., May 3, 1889.

Dr. Irving A. Watson, Concord, N. H. :

SIR, — I forward you with this a copy of the report of Dr. Charles B. Michener upon the outbreak of disease in cattle investigated by him in accordance with the request contained in your telegram of the 23d ultimo.

Very respectfully,

D. E. SALMON,

Chief of Bureau.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY,

NEW YORK, N. Y., April 30, 1889.

Dr. W. S. Devoe, Chief Inspector of State of New York, 1,104 Lafayette Ave., Brooklyn, N. Y. :

DEAR DOCTOR, — In compliance with instructions from Hon. J. M. Rusk, secretary of agriculture, and Dr. D. E. Salmon, chief of the Bureau of Animal Industry, through your hands, I started Saturday morning, April 27, 1889, for Bellows Falls, Vt., to investigate an outbreak of disease supposed to be contagious pleuro-pneumonia. I reported to George H. Jackson, station agent, Cold River, Cheshire county, N. H. Sunday being his idle day, we went on the morning of April 28 to the farm of Herbert C. Hatch, of Cheshire county, N. H.

Mr. Hatch had a herd of twenty-two cows and one bull, all in good condition as to flesh. About ten days ago he killed a cow that had been lame in one hind foot for over a week. I learned that Mr. Hatch had purchased early in February, 1889, two cows from a farmer living at Saxton's River, four miles northwest of Bellows Falls, Vt. No other cattle have in any way come in contact with Mr. Hatch's herd. The cow that was killed was one of his old cows that he has had for years. At present two cows present the following symptoms : No. 1. Dark red cow, five years old, in good condition, pulse 65, respiration 20, temperature 102° F., appetite and digestion good. There has been a swelling of the near hind leg below the fetlock, and lameness for about one week ; on examination I find suppuration between the claws of this hoof of a very offensive odor. No. 2. One of the cows bought in February presents the same symptoms as No. 1, with the exception that she is down most of the time, as both hind feet are affected. There are no lesions of the mouth, nose, or other parts.

These cows are in a damp, dark, dirty cellar, standing in mud and their own droppings. The entire herd has been out for an hour or two daily all winter and spring in a muddy barnyard, through which drains the refuse of a slaughter house. Decaying brewers' grains are also thrown where cattle stand in them. Since the trouble appeared the cattle have been turned out during the day in a low, wet, meadow pasture. The disease evidently is that commonly known as "foul-in-the-foot," "hoof-ail," "thrush," etc., and is caused by excessive moisture, filth, and decaying animal and vegetable matter.

Recommended that the healthy animals be removed to a dry pasture, and that their hind feet and legs be bathed with a solution of corrosive sublimate, 1 to 1,000 of water. The two affected I directed to have their feet thoroughly cleansed, the loose parts of horn removed, and then treated by caustics, astringents, and antiseptic washes, etc., etc.

Agreeably to further directions I then went to Concord, N. H., to confer with Dr. Irving A. Watson, of the State Board of Health. I found Dr.

Watson just about to start for New York, and had to accompany him. Learned from him then that another outbreak of disease about forty-five miles north of Concord had proved to be tuberculosis, and in his judgment, as well as my own, it was unnecessary to go there to make any further investigations.

Is it not possible to get some definite idea as to history, symptoms, etc., of reported diseases before visiting such distant points? Such knowledge, if possible to obtain, would make such visits as this last unnecessary. I reached New York this morning at six o'clock.

Very respectfully yours,

CHARLES B. MICHENER, V. S.,

Inspector of Bureau of Animal Industry.

Respectfully submitted.

W. S. DEVOE,

Chief Inspector for State of New York.

Respectfully submitted.

IRVING A. WATSON,

W. H. H. MASON,

N. J. BACHELDER,

Cattle Commissioners.

THE AMERICAN FORESTRY CONGRESS.

BY J. D. LYMAN, DELEGATE.

To His Excellency Charles H. Sawyer, Governor, and His Honorable Council:

GENTLEMEN, — Receiving your appointment as delegate from this State to the American Forestry Congress, I attended its session convened at Atlanta, Georgia, December 5, 1888. I am informed that a report is expected from me for publication in the annual report of the Board of Agriculture. The fact that I am without a precedent to follow, and that I do not see the subject of our forests in the same light that most of the eminent persons and officials who lead in the sessions of this congress do, together with the fact that no wrong theories or "false facts" should appear in the agricultural report, makes my report a perplexing task. I will briefly sketch the proceedings of the congress, make a few comments, and add some remarks upon the forestry problems and official reports.

This session of the congress was one of unusual importance, not only on account of the eminent persons and high officials who attended it and the interest manifested throughout its proceedings, but because the Southern Forestry Congress, with ex-Governor Bullock as president, convened at the same time and place, and these two bodies, by the unanimous vote of each, united under the name of the American Forestry Congress. Both houses of the Georgia Legislature adjourned over the 5th, and courteously tendered these congresses their halls. In these they convened, and effected their union. Subsequently the

congress sat in the large and convenient hall of the Young Men's Christian Association, the use of which was generously given for this purpose. The courtesies extended by the Governor and others, and the addresses of welcome by the speaker of the House and by Mayor Root were pleasant incidents of the session.

Hon. W. T. Knott, of Kentucky, spoke eloquently, saying that the American forests were melting like frost before the sun, and unless something is done within a short time, we shall have no timber. He repeated the old-time story of a dearth of wood and timber near at hand.

The chief of the forestry division under the government at Washington and secretary of this congress read his annual report, speaking of the fruitfulness of the past year, the increased interest in forestry, especially in New England, New York, Pennsylvania, Michigan, Illinois, Kentucky, and Tennessee. He spoke, also, of the effort made during the year to impress upon the Congress of the United States the requirements of the national timber interest. A bill for an administration of the national timber domain, which was presented at the Springfield session of the American Congress of Forestry, had been modified and introduced in both houses of Congress, and he had urged favorable action upon it, but in vain. Congress (United States) had participated in the exhibitions of forest woods, thus advertising the condition of the forestry interests. The people must, he said, be educated upon the subject of forestry. In my judgment, this report was far less marred by unproven theories and statements than was that from the same office at a previous session.

In the evening Hon. A. S. Clay, speaker of the House, in his address of welcome declared that the overflow of our streams and the washing of our soil, to the great detriment of our farming interests, are caused largely by the wholesale destruction of our forests. He understood the object of this congress to be to impress upon the people the importance, not only of preserving existing forests, but of planting trees for future generations. "Yes, ladies and gentlemen of the American Forestry Congress," said he, "the State of Georgia recognizes the importance of your mission, and we throw open our doors, we introduce you to our citizens, and welcome you to our State."

Mayor Sidney Root followed in a few witty remarks, extending the hospitality of Atlanta to the delegates.

President Pringle replied to these speeches of welcome, saying that after receiving such words of welcome from the speaker of the House of Representatives in behalf of the State, and from Mayor Root in behalf of the city, it was with pleasure that he expressed for this congress their sincere thanks for the unbounded courtesy with which they had been received. He continued at considerable length in an eloquent strain.

An appropriate poem, written by M. M. Folsom, was read by Mrs. Lollie Bell Wylie.

The president, C. R. Pringle, then delivered his annual address. This was a carefully prepared and lengthy document, giving in detail the aim and objects of the congress, the history of forestry laws and organizations, and predicting what the future has in store. He has great hopes of the future, and thinks the growing interest in forestry an omen of good.

General Greely, our present "Old Probabilities," spoke of his connection with the forest industry, and touchingly described his joy "at seeing once more the sougning pines" after being snatched from the jaws of death in his long imprisonment in the treeless wastes of Arctic ice.

On the second day a letter was read from General Manager Rycman of the Southern Agricultural and Mechanical Exposition, inviting the members of the Forestry Congress to attend the meeting of the National Agricultural Congress, to be held in the Exposition building, in Augusta, commencing December 10.

Professor Egleston, from the committee on legislation, reported efforts made to induce the United States Congress to pass a bill for the protection of the public timber lands. This bill was referred in the House of Representatives to the committee on public lands, and in the Senate to committee on agriculture. Mr. Egleston and Secretary Fernow had done their best to induce these committees to accede to their desires and favor the bill, but the House committee voted against it, and the Senate committee took no action on the subject.

Then came reports on the subject of forests from the several States and Territories. Maine was not reported. The report

from New Hampshire was in accordance with my well-known views. J. D. French said Massachusetts had 1,380,000 acres of woodland, and there was but little decrease. W. D. Smith, of Connecticut, said he thought that forestry ought to be taught in our common schools. J. B. Harrison said the area of forests in Vermont is not diminishing as rapidly as would be supposed; attention to forestry in detail is needed; much harm is done by fire. W. H. Hale, speaking for New York, said that Albany was at one time one of the greatest lumber markets in the world; a law is in force against lumber speculation; Arbor day is observed; the press of the State is in sympathy with the subject of forestry. T. D. Day, speaking for Pennsylvania, said many forest laws are in force, and Arbor day is observed; the government and forestry associations are willing to act, but do not know what to do. C. C. Binney, of the forestry association of the same State, said he came to learn of this congress what ought to be done; the work of their association had been mostly educational.

General Greeley spoke for the country at large. He thought the forestry question one of the most vital importance; it is difficult to make people believe that they ought to plant trees; the authorities at Washington should bring this subject before the people; much can be learned from Europe. Professor Glen contended that much damage resulted from the dead leaves and underbrush in forests, and that the ground ought to be burned over, and thus kill the insects. Mrs. Ellen Call Long, of Florida, said that her State was sadly in need of statistics regarding its forests; the turpentine industry had greatly injured the forests, but much was still left. She thinks that the Southern States owe their most valuable forests, those of the long-leaved pine, very largely to forest fires, this being the tree which withstands the fires while the other kinds are killed. I was much interested in this, for some twenty-five years ago I became convinced that the reason why the groves on the Western prairies were of bur oak and our New England sand plains covered with pitch or hard pine was because these trees retained their life while the fires killed the others. This lady is the first observer to confirm my views, so far as I

know. She eloquently advocated the introduction of the mulberry tree and silk production throughout the Southern States, her idea being for each poor family, and those in moderate circumstances, to have a few trees and silk-worms, so as to give some employment to the women and children, many of whom now have much spare time which is wasted. Her paper was one of the most thoughtful, able, and suggestive read before the congress.

Richard Choate, of Minnesota, said that his State was not all forest; that they had much prairie land; the forests are being so rapidly cut that the need of laws is manifest. Dr. George W. Minier, of Illinois, said Arbor day was strictly observed in his State, but "I would as lief put an elephant to mind chickens as to get most men to think about forestry." V. J. Shipman, of Iowa, thinks that whirlwinds and blizzards have been checked by forests; the State has certain tax exemptions of forest land, and by wise legislation had twice as much forest in 1880 as it had in 1860. Colonel Knott, of Kentucky, said the Northern States are going to them for hard woods for carriages, the Eastern States for fine woods for furniture, and with all sections thus thronging to their woods they are rapidly going.

A paper was read from John E. Hobbs, of Maine. He thought the Boston session of this congress did good in Maine. The Grange in Maine has a membership of over 15,000, and through its influence Arbor day has been established and a call issued for a State Forestry Convention to meet at Bangor, December 18. Mr. Hobbs is one of the best informed men on forestry I ever met.

Secretary Fernow read the second biennial report of the California State Board of Forestry, stating that a reform in forestry matters is taking place in that State. They are endeavoring to protect the great mountain-sheds from the devastations of corporations and fires.

No other States were represented.

Col. E. T. Ensign, of Colorado, read a paper on the forest system of his State, where they have a state forestry commissioner, and the road overseers and county commissioners are also forest officers. It is the duty of these officers to guard against forest

depredations and fires, and to encourage the growing of trees. There are laws with severe penalties against setting forest fires. Forestry is taught in the State Agricultural College.

S. J. Rauner, of the imperial household of Russia, and an agent of the Czar, visiting this country to examine its trees and forests in order to introduce any species which were thought desirable into the Empire, spoke briefly of forestry in Europe and Asia.

"Bill Arp" read a literary and interesting paper on trees.

General Greely, of Arctic fame, read a very interesting and valuable paper, which is his report as chief of the signal service to the United States. He thinks the government will soon have to decide what its policy is to be in relation to the forests and rivers of the so-called arid and sub-humid regions, and to pass upon the question of interstate irrigation, if it does not give its direct aid to this powerful means of increasing a thousand-fold the present value of many million acres of unwatered land. He coincides with the director of the geological survey in the idea that twenty inches of annual rain-fall is necessary for the growth of forests. The general is, in my judgment, performing a valuable labor and accumulating much useful information for the government. He seems neither given to making statements which may be doubted nor supporting unsound theories, but like a true scientist he is collecting facts. I think he is a valuable officer for the government and country.

Dr. Mohr, who is a learned botanist, read an interesting paper on "Forest Lands." Prof. Atkinson made sensible remarks. In the evening there was a very agreeable reception at the governor's.

On the third day the report of Prof. B. G. Northrop on Arbor day and the good its observance is accomplishing was read. The professor is a valuable friend of forest culture.

Rev. Dr. Poindexter, of Ohio, read a paper on "Free Lumber." Dr. Poindexter is a very worthy and excellent friend to the cause of forestry; but I think a larger acquaintance with our forests as they are, and more information as to the opinions of practical men familiar with the lumber business for the last fifty years, might cause him to modify his views. His heart is all

right and it does one good to meet such an earnest friend of forestry. The remarks of M. J. Keens were most sensible and practical. Line our roads and streets and cover our waste lands with trees cared for as parks, — such was his excellent advice. Mrs. Ellen Call, of Florida, read an admirable paper on the "Forest Features of Florida." She said the maritime pine (what we call southern pine) forests extend from latitude 36° down into Florida, thence turning westward along the Mexican gulf coast to the valley of the Mississippi. The width of this pine belt is from one hundred to one hundred and fifty miles, and that portion of it which is in Florida yields as fine timber as can be found. Recently they have made cotton bagging, door mats, etc., from its leaves. The census report of 1880 estimates that 1,853,582,000 feet board measure of sawed lumber were taken from this pine belt the preceding year. She spoke of the cypress and red cedar as valuable trees, and said that the poplar, ash, wild cherry, black locust, walnut, and Pride of China all have commercial value even as early as from fifteen to thirty years of age. She thinks timber trees of the long-leaved pine can be grown in from sixty to eighty years. Dr. Mohr said it would take from one hundred and fifty to one hundred and seventy-five years (and, as quoted in the Agricultural Report of 1886, two hundred years) to grow this timber. I suppose the fact to be that if the trees have sufficient space to grow in, very fair-sized timber can be grown in from sixty to eighty years; but if the trees stand too close, they may be from one hundred and twenty-five to one hundred and seventy-five years, or longer, in growing large timber. If very crowded, I suppose they would grow very slowly for one hundred and fifty or more years, and die without being large. While Dr. Mohr claims that it takes some one hundred and fifty years to grow large southern pine timber, I understand that ex-Governor Drew of Florida says he can cut a crop of timber from his long-leaved pine lands every twenty years, taking only the largest trees at each cutting. Hence it is evident that while the learned doctor talks as though you could get only one crop of good southern pine from the land in one hundred and fifty or two hundred years, yet the governor would cut from seven to ten crops in that time. Such is a

sample of the discrepancies between men learned in the books and those taught by practical experience.

Mrs. Call also said that nut-bearing trees can be profitably grown, and the mulberry for silk-worms flourishes finely. I was surprised at the amount of practical knowledge this lady possessed about the forests. She must have studied the woods themselves instead of relying upon the careless and non-observing makers of books.

This ends my report of the proceedings of the congress. I visited the Mechanical and Agricultural Exposition at Augusta and saw much for any one to admire who rejoices in the development and prosperity of the whole country. The southern pine timber used in the construction of the vast exposition buildings was to me an object of beauty and interest, so long, strong, and smooth, so free from shakes, rots, and knots. I visited this fine exposition as a private citizen and must confine my report and remarks to forestry subjects.

I hope that the American Forestry Congress is improving and that its leaders are giving rather less attention to regulating the weather in general, including the rain-fall, the moisture and temperature of the air, etc. I trust that it will ere long get down still more to practical forestry, to facts and proven theories. This congress has been largely led by the officers of the forestry division under the United States government, who I think ought to be its leaders because forestry is their specialty and they are salaried for knowing or to find out the facts and correct theories and report the same for the information, guidance, and benefit of the people. As from the United States mints nothing false or counterfeit should issue, so the greatest care ought to be taken that nothing false or deceptive should be sent forth from this office. Facts and truths lead and benefit the people; falsehoods and untruths mislead and injure them. I am glad to see that the later reports on forestry are giving a little information on practical forestry.

In 1883 the chief of the forestry division (Agricultural Report, page 493) says that where the forests are standing the streams flow with nearly equable supply of water from season to season, but where the trees have not been left on the hillsides to catch the

raindrops for man and store them at their feet, and dispense them seasonably as his needs demand, floods and dry river-beds prevail, mill-wheels can no longer drive the machinery in a thousand factories, and tens of thousands dependent upon them for bread stand idle or work half the time, and owners cannot get proper dividends, boats are stopped and the whole course of business deranged, the husbandman's crops wither and the springs fail. As my learned and excellent friend who wrote this is a clergyman, I am reminded of the fearful vengeance by the Chaldeans as described by the prophet Nahum, and the strong, final assertions of Habakkuk, and the thought occurs that he might have read them just before drawing this fearful picture. I do not know whether there be truth or not in the picture, and if there be any truth at all in it, I do not know how much or how little. A civil engineer, Mr. Roberts, who, I understand, has been much employed by the United States government upon rivers, publishes in "Science" a long article with a great many records of the measurements of the flow of rivers in this country and in Europe, extending over many years, and his figures seem to demonstrate that there is no truth whatever in the statement which makes the flow of rivers more regular before than after the forests are felled. Our Pilgrim fathers settled in the edge of I suppose the largest forest on the earth and close by the ocean, yet they were nearly dried to death the third or fourth year, and the colony is said to have suffered twenty-three droughts during its first century. I suppose there has been more land cleared of forests in the United States during the last hundred years than in any other country in the world, yet the records of rain-fall kept at various places from a few to more than one hundred and twenty-five years, I am assured show no diminution in the fall of rain. As I understand the subject, these records utterly fail to show that this fearful official picture in the Agricultural Report can be true.

One writer quotes many records to prove that the rain-fall in Ohio has increased with the cutting of her forests. Again, there has been, if I am correctly informed, more planting of forests in our Western States within the last twenty-five years than there ever was, so far as we can find out, in any other country in the world

in so short a time, not less than 700,000 acres in Nebraska alone and nearly as many in Kansas (Agricultural Report of 1885), and yet it is said that the records do not indicate any increase of rain-fall from this great work of plantation forestry. In Kansas I was surprised to find from the records kept since July, 1860, no indications of increased rain-fall. One writer thinks that there has been a slight increase in some sections of the West. Surely no variation in our New Hampshire forests made 1887 one of our driest and 1888 and 1889 very wet years. If the forests of Strafford county have been as nearly cleared as the census report indicates, it must be difficult for those who can by cutting trees dry up the earth or by setting forests keep it wet, to explain why it is that the rain-fall in forest-clad Grafton county at Hanover for a series of years averages nine inches less than at Dover in denuded Strafford. (I write this difference in rain-fall between Hanover and Dover from memory.)

How much would the great storm of March, 1888, have differed from what it was if the whole of New Hampshire, or indeed of New England, — had this entire territory, though larger than old England, been one entire forest or without a tree? This storm was observed in the North Pacific Ocean on the 6th of March; on the 10th there were heavy rains in Central United States from the Gulf of Mexico to Lake Superior; on the 11th the northern cyclonic disturbance passed to the British possessions beyond our observation, while our portion of the storm moved towards Cape Hatteras, thence northward along the Middle Atlantic, then coming to the coast gave heavy rains in the Southern Atlantic States and heavy snows in the Northern. This storm, lasting, so far as we know its history, from March 6th to the 14th, and sweeping over so very many degrees of latitude and longitude, was, we presume, far, far beyond the power of man or trees to be very much affected, guided, or controlled by either or both.

Felix L. Oswald, in the "North American Review" for December, 1887, states that by the destruction of forests six and a half million square miles of once fertile lands have been converted into a Gehenna of arid sand wastes, and that this Gehenna-making is now going on at the rate of three thousand two hundred square miles yearly. At this rate man will, in the

next thousand years, seal the fate of the human family by destroying the productiveness of the earth. He does not locate his Gehenna, and I have failed to find it upon any of the maps, or find any one who knows where it is. Since the United States, excluding Alaska, is much less than half the size of this man-made hell of sand, I am surprised at not being able to find out its whereabouts, and that there is no mention of it in any of my geographies, nor in Guyot's "Earth and Man," nor in any of the encyclopædias I have examined, or any histories which I have read, although I have read many statements of a similar nature on a smaller scale. Since rain is but the return of the water which is evaporated, I should suppose that the first thing to do in order to stop the rain would be to prevent evaporation, or in other words to put out the sun, the great cause of evaporation, for if the rain is stopped and evaporation continues, the ocean would in time be in the air above the land. Vapor rises from the warm earth to the colder space above, and is condensed, and falls back as rain, etc. As I understand them, geologists teach that the greatest rains occurred before the earth was cool enough for trees to grow. From the hot earth vapor rose to the cold upper regions and fell back in rain. At any rate, before I shall believe that man can kill the human family and make this world one Gehenna of waste sands, and frustrate the believed purpose of God in its creation as the abode of life by cutting trees, I shall wait for further proof. Please give us the proofs, — the facts, the figures, — for "What can we reason but from what we know?" Large statements relating to Northern Africa, Greece, and Western Asia, as made by F. B. Hough and others, are not convincing.

Within some eight years there have been two great floods in China, and the learned and eloquent Hon. E. O. Chapman, of New Jersey, lays these floods to the cutting of the forests. I reply by saying that I know of no recent great cutting of forests in China. Does Mr. Chapman? Again, China is the greatest forest of tea shrubs and mulberry trees in the world, and has been for a long time. Will any one deny that these trees and shrubs, by taking up water from the soil and transpiring it through their leaves, perform the same functions as other forests?

He also asks, "Where are the cedars of Lebanon which King Hiram cut, and the powerful nation which existed at that time?" I ask, "Where are ancient Greece, Rome, Carthage, and the builders of the cities in the densely wooded regions of Central America, or the builders of the sphinxes, palaces, and pyramids in the ever almost treeless valley of the Nile?" All such wild questions and inferences from unproven, and I think false, premises remind me of my childhood friend, old Lemuel Varney, who seemed to sincerely believe that if the liquor shops were closed women must die in giving birth to children. This lover of liquors thought that the continuance of the human family depended upon rum, and Oswald and Chapman think it depends upon trees! How fortunate that our Heavenly Father runs this world, and not these gentlemen, lest the story of Phaeton be repeated.

If the statements made at the Boston session of the American Forestry Congress by the chief of the division of forestry under the United States government are correct, all the forests in this country will have been cut and the entire country de-forested by the year 1894; for, taking his statements of the forest area and the rate at which it was being cut and destroyed, it would only last eight years and nine months. This is awful, if true.

If the estimates in the last census report of the spruce timber in New Hampshire are correct, it has been all cut by this time, and our State is virtually destitute of timber. By that report wood was reported scarce and rapidly rising in value in your Excellency's county of Strafford. I think this must have been news to the citizens thereof. Our New Hampshire lumbermen are still cutting a hundred million feet, more or less, of lumber yearly in this State, just as though the timber was not all gone. They seem to be as unconscious that the timber is all cut as General Taylor was that he had been whipped by the Mexicans. A letter just received says that one company has this year a drive of one hundred million feet cut in Coös county; and even now one responsible party authorizes me to sell for them one accessible timber lot in this State upon which their experts estimate that thirty million feet of lumber can be annually cut for the next fifty years, even if the trees grow none in that time. As

the price is not high, one would think that people believing in such rapid destruction of our forests and the speedy dearth of timber would jump at this opportunity.

In the last census report the annual consumption of forest products is estimated at \$700,000,000, or more than \$70 to each family in our country. I understand this to be the estimated value of these products as they stand in the forest before labor has been bestowed upon them, and that their value when consumed by the people must be several times this amount. Considering the income of the wage earners and the other costs of living, this estimate of the cost of forest products to each family seems too large. This sum is nearly twice the value of our wheat crop, greatly exceeds that of our corn crop, and is ten times the yield of our gold and silver mines, and, judging by the amount consumed by the thrifty families in cold New Hampshire and the annual wages of laborers, I think it must be an overestimate, yet it is but one dollar and forty-three cents to each acre of our forests. The estimated value of all the mill logs in another part of the report is given separately, and amounts to less than twenty-nine cents to each acre of forest.

The chief of the forestry division in the Agricultural Report of 1884, page 154, says that the rapid destruction of our forests is startling, and on the next page says that in 1879 the lumber cut was 18,091,356,000 feet and 5,555,046,000 shingles. Don't be scared, for this is less than thirty-seven feet of boards and twelve shingles to each acre of our forest, and is only equal to the cutting of one small tree, say sixteen inches in diameter one foot from the ground, from each acre, once in ten years. As proof of the rapid destruction of our forests, we were told at Atlanta that in the last census year 1,853,582,000 feet, board measure, were taken from the great southern pine belt. This is, forsooth, a big pile, but they described that forest as commencing near latitude 36° and extending south into Florida and then sweeping west to the valley of the Mississippi, and as being in width from 100 to 150 miles. Calling the length only 1,300 miles and the width 100, the amount cut that year per acre is about twenty-two feet, or a block two feet long and eleven inches by twelve inches. The acreage of forests in Maine is

given in Forestry Bulletin as twelve million acres, from which are yearly cut two hundred and twenty million cubic feet. Well, that is only about eighteen feet to the acre, and the same authority states that the German forests grow fifty-five cubic feet to the acre yearly.

The same chief of the forestry division reports that it takes twenty-five million railroad ties yearly for our roads. Well, that is not quite one each year to nineteen acres of our forests as he gives the acreage. My eye just falls upon another estimate which makes the yearly consumption of railroad ties sixty millions, or one tie yearly for eight acres. Considering that this is one thousand a mile annually for sixty thousand miles of road, and that a tie lasts some seven years, this looks like a large estimate. This number of ties, nine inches wide and lasting seven years, would keep sixty thousand miles of railroad bed entirely covered or planked like a floor.

The chief of the forestry division says it is now safe to say that "the annual consumption of wood and wood products is at least double the amount reproduced on our present forest area." This is not as startling as the statement made by his predecessor at Boston, but yet is fearful to contemplate if it is a fact.

Leaving out Alaska with its immense forests, this country has from thirty-two to thirty-six acres of land to each person, of which the officials tell us nine and eight tenths are forests. Hence, if this forest area only grows yearly half as much as we use, it would take nearly twenty acres of forest to supply by its annual growth each person, and in twenty odd years, at the rate our population increases, there would not be land enough in our country, were it all forest, to supply our people at the present rate of consumption and reproduction.

I do hope that at the taking of the next census some means will be taken to find out more than we now know as to the amount of timber we have now fit to cut, the amount we cut and destroy yearly, and the amount that grows annually. It is a singular fact that, notwithstanding the rapidly approaching dearth of wood and timber and the total destruction of our forests so persistently predicted by our forest officials, yet their estimate of the amount of our forest area has in the same time increased

within a few years (leaving out Alaska) from 380,000,000 acres to 450,000,000, and is now about 490,000,000 acres. But this addition of 110,000,000 acres to their estimate seems to have no benign influence in diminishing the woful predictions they make.

The subject of forestry is very important, and while truth would do great good, untruths will be likely to do the people much harm. I find in the official reports many statements at which my judgment protests and my arithmetic rebels as not being the truth. I have no theories to maintain, but am simply trying to find out the truth for the benefit of the people of my State in the first place, and then for the whole country or even the world.

Our cold, thin-soiled White Mountain region, with its mixed growth, has about five thousand feet of spruce to the acre in the old forests. It appears that Washington Territory averages thirty-five thousand feet of timber to its acreage of forests, and that around Puget Sound the forest is immense. If the forest in this country, outside of Alaska, averages only five thousand feet, board measure, to the acre, then we have of standing timber fit to cut nearly fifty thousand feet to every man, woman, and child in the country, or some two hundred and fifty thousand feet to every family. If the growth on each of these acres annually should become only one hundred feet of timber and one half a cord of wood, the yearly growth would be some twenty-five cords of wood and five thousand feet of boards to every family in the country. But if the yearly growth upon each acre of our forest area should be equal to what these reports say it is in Germany, then it would be more than thirty-two thousand feet of boards to each family. I leave out Alaska, and use last census reports. Dr. Sturtevant says that between New England and the Potomac river the growth of wood is one and a half cords per acre a year. This would give some seventy-four cords to each family. In our State it is about six feet of hard wood or twelve feet of pine per acre a year for the first forty years. I find few statements as to the yearly growth of wood or timber per acre per year. Hon. Joseph B. Walker measured timber as he found it at the mill. I take his measurements and find each tree grew on an average four and two tenths

feet, board measure, per year. This was a very slow forest growth, but one hundred of these small trees (averaging about 330 feet) would grow upon an acre, and this would give an average yearly yield of 420 feet of boards to the acre from the time the trees started till they were cut. I recently found a tree at the mill here which was eighty-six years of age, and made one thousand feet of boards, or an annual growth of nearly twelve feet a year during all its life. About fifty such trees could be grown to the acre, which would give an annual growth per acre of over 581 feet. I think under favorable conditions in New Hampshire that I can grow one hundred pines in sixty years, from seed, to the acre, which shall average five hundred feet to the tree. If fifty of these can then be taken from among the others without injuring those left too much, I think the fifty left would in thirty years make one thousand feet to the tree or fifty thousand to the acre; then if these can be thinned out, leaving twenty-five to grow thirty years more, I think these would average two thousand feet to the tree or fifty thousand to the acre. I say nothing of the large amount of wood, poles, and small timber from the thinning till the trees are forty-five years of age. I would want the trees not over four feet apart at first, and by repeated thinnings keep them growing rapidly till they are forty-five years of age, when I would leave one hundred to the acre to grow till sixty years old. Neither have I mentioned the slabs, tops, and limbs when the trees are cut at sixty years of age. But the timber crops by the above calculation would be at the rate of 750 feet of boards for each year. The estimated growth for the first sixty years is 833 feet of boards yearly. Quite likely that twenty-five years instead of thirty would be long enough between the cuttings to produce the above results. As before stated, I find many accounts of the yield of cultivated crops per acre per year, and few indeed of wood or timber. In the White Mountain region, with its mixed growth in a cold climate and on a thin soil, I am told that those who cut out the larger spruce trees and leave the smaller can cut the forest over once every twenty or twenty-five years perpetually, and get about the same crop as at the first cutting. The annual growth in these forests, under these circumstances, is from 200 to 250 feet, as I am informed. By cutting out the worthless trees

and properly thinning out the thick clumps, it is evident that this annual yield might be much increased. Were the trees all timber trees, instead of so many "weed" and wood trees, this timber crop would be greatly increased.

The reports of the growth of forest trees in Kansas in the agricultural report would give a yearly crop of several cords of wood or thousands of feet of lumber per acre.

Suggestions in the official reports of methods to increase the annual growth of forest products except by planting new areas are few and come late. They very properly urge the stopping of forest fires, and this in young growth would increase the annual crop; but the stopping of forest fires seems to be generally urged not for this purpose, but to prevent the destruction of what is already grown. The last report is an improvement, and some excellent statements are in it.

Who does not know that in an old forest there is no growth of the trees at all, except enough to make good the decay? In those portions of the great southern pine forests where nothing has ever been cut, have we any reason to suppose that the amount of timber per acre has materially changed since Columbus discovered America? In all old forests can it be doubted that the land lies practically in an absolutely idle condition, simply keeping the amount of timber up to what it had produced thousands of years ago? If a forest of white pines is started on cleared land, for instance, it may in forty years have sixty cords of wood per acre; in some one hundred and twenty-five or one hundred and fifty years it will have the greatest value of timber. At that age, or soon after, it will begin to decrease, both in quality and in amount of sound timber. This decrease will be likely to continue till its value is perhaps one fourth of what it was when at its best, and at this point it may remain for unknown centuries. Those who argue in favor of keeping the old forests untouched urge that the land may remain idle and the forest in a comatose state. The moment you put the axe to the big trees dormant life springs to action, and the forest starts from its coma and the land from its sleep. In cases where it is best to cut clean, the land will often grow spontaneously a new forest of far more value than the old.

Let your old, ripe forest crop remain unharvested and plant

cleared land to trees, even when we have nearly ten acres of woods to each person in the country, seems to be the instruction of all official reports. I favor tree planting on waste lands and in the prairie States, and where needed on steep declivities. I hope to see tree seed, especially that of white pine, common in the market, and sown on many thousand acres in our State. But the idea of a scarcity of wood and lumber in our country as a whole, and of the necessity of setting good tillage, hay, or pasture lands to trees, except in a few Western States, is to me an absurdity. One of the things we want to know is the best method to pursue in order to grow more and better timber on our present forest area. I see that Professor Sargent says, in amount, that no one knows how to grow a crop of timber. I admire the honesty of Mr. Sargent in making such a frank, and I fear too true, remark. I presume that Professor Sargent is bound to the course he pursues by the wills or deeds of those who founded the institutions over which he presides, but it seems to me most unfortunate to give so much attention to his exceedingly interesting bushes, shrubs, and lone untrimmed trees to the entire neglect of the very important subject of timber culture. I recently visited these institutions at Jamaica Plain, Mass., to learn what I could about their methods and success in growing timber, but did not have the pleasure of meeting either Professors Sargent or Storer. The scarred veteran, Jackson Dawson, put me under lasting obligations by his attention and knowledge of plants, shrubs, and bushes, but informed me that they gave no attention to timber culture. Is not this in line with giving attention to the "mint and anise and cummin" and neglecting the weightier subject of timber culture? I know next to nothing as to starting forest trees from seed, and know no reason why it should be more difficult to start a crop of timber trees than an apple orchard; but after they are started I would as lief undertake to grow a crop of timber as a crop of corn. Yet I cannot put it in definite terms and figures on paper. I should have to be governed in thinning the trees by my sight, so as not to have the trees too slim and stunted, nor too short and full of limbs. Then a crop of box-board trees might require a different thinning from a crop grown for ship masts. Generally the young trees are so

handsome that people are apt to let them stand much too thick. One hundred pines to the acre, when they are forty-five years of age, I think enough. Who ever thought to grow fine, large apple trees and fruit in a thickly sown nursery? Will not the severe pollarding of the oaks on the Bussey or Arnold lands injure the wood of the trees? I do not know. I think their docking pretty severe for one operation. I saw apple trees greatly injured by too much "shortening" of large limbs at one time.

I see it stated that France, at the commencement of her late war, had only two million three hundred thousand acres of forests, and yet her population of nearly forty millions used but little coal. The statement in the agricultural report gives to each Frenchman about 109 square rods of forest. The forest area of France was diminished during the war, and it is not surprising that she is re-foresting her de-forested lands; but I do not understand why it should cost so much (\$120) per acre, as it is said to in the Forestry Report. If rain depends upon forests, it must be very dry in France. If France has anywhere near a sufficiency of forests, we have enough and to spare. The chief of our forestry division, in conversation and in report, says that considerable of our forest area reported is likely to be "bushes, mere brush." Better, far better, as regards our future forest supplies than though it was all fully grown timber, for the land covered with bushes is at work growing a new, and I dare say in most cases a better, growth than was the old one when cut. It would be a fearful thing if the census did not report a large percentage of our population under ten years of age—human bushes, mere human brush! God in infinite wisdom thins out the human family by removing the feeble, sickly young and the old, thus keeping the population strong and vigorous; and by taking out the crowded, feeble, and sickly trees, and the old ones, we will keep the forests vigorous and valuable.

Some time since I received the forestry division's report of their estimated time the standing timber in each State would last at the present rate of cutting. In several States the time was fearfully short, but in one State, I think, it was 300 years. Most likely there is not a live tree in that State 300 years old. The present trees in the forests of that State would be dead and decayed

in that time, yet it is a very common thing to reckon the standing timber the same as coal is computed in the mine or corn in the bin. They say that there is so much coal in the mine, corn in the bin, and grown timber in the forest, and divide this amount by the consumption per month, and thus find out how long it will last. If they will only keep cutting out the ripe trees, the ground will keep growing new crops. By cutting out the large trees and letting the smaller ones grow, you can get a crop of timber every 20 or 25 years, instead of one crop as above indicated in 300 years; and this practically increases our forest crops on the acres now in forest many fold instead of planting more acres to get that increase.

The great saving by sawing with the thin belt saws instead of the present wasteful circulars, is a hopeful improvement, and is said to be in successful operation.

Seth Green, by studying the fish in their native element, benefited the civilized world, and so will he who enables man to grow more good wood and timber on less land, or make two good trees grow where one grew before. I think their tasks in certain senses easy ones. So far as our own country is concerned I believe in growing more timber on less land; that is, in growing all that we need to use or can profitably sell and in growing it upon much less than ten acres of land to each person of our population.

I rejoice that more attention is being given to forestry; that people are beginning to see the advantage of giving each tree they wish to grow into good timber a proper space in which to grow; that they are seeing better than ever before the economy of cutting the ripe trees and growing another crop of timber on the same ground, instead of letting the old trees occupy it while they become rotten; that they are seeing better than formerly that thrifty young timber trees pay well to stand and grow, and that they can, by judicious thinning, grow a good crop of timber in the time in which the trees, if left too thick, would only be fit for wood, fence poles, and the like; that in many places it will pay to grow timber, where it will not pay to grow wood. Make it a point to grow timber instead of wood, when practical. In Concord a cord of pine logs is said to be worth four cords of pine cord wood.

I think I have known lots upon which the trees stood after they were fit to cut till their depreciation in value, the taxes paid upon them, and the interest upon the money they would have brought, would amount to more than the lots would then bring. At least one life-long lumberman has repented cutting thrifty little timber trees, and come and thanked me for calling his attention to the subject by some newspaper article. To illustrate: A pine twelve inches in diameter is not worth as much per foot of contents as one sixteen inches in diameter, and will not make one half as much and will cost more per foot to put upon the market, and yet it is not a fast-growing pine twelve inches in diameter which will in ten years be sixteen inches in diameter, thus paying more than ten per cent, simple interest, to stand.

I think I have seen many pines not worth over twenty cents apiece which in twenty or twenty-five years grew to be worth ten times that amount, or two dollars each. The logs at the mill here show that many of them were cut when they were paying ten per cent to stand, while others show that they stood many years after they did not pay the half of one per cent.

The profitableness of timber growing I cannot discuss at length. If I can grow, under favorable circumstances, one hundred pines on an acre in sixty years, that would make fifty thousand feet, they would be worth say \$250. If fifty of the trees be cut out so as to give the others their room to grow in, and these stand thirty years and make one thousand feet to the tree, these would be worth about \$500. If twenty-five of these could be taken out, the twenty-five left would, in thirty years, make two thousand feet to the tree, and would be worth say \$800. The account would stand thus:

The 25,000 feet cut at 60 years of age	.	.	.	\$125.00
" 25,000 " 90 " "	.	.	.	250.00
" 50,000 " 120 " "	.	.	.	800.00
				<hr/>
Total from one acre	.	.	.	\$1,175.00

Suppose the money put at interest so as to double itself once in fifteen years, the account stands thus:

The \$125 received for 50 trees, first cut at 60 years	.	\$2,000.00
" \$250 " 25 " second cut at 90 years		1,000.00
" \$800 " 25 " last cut	.	800.00
		<hr/>
Total from one acre in 120 years	.	\$3,800.00

If all had been cut at sixty years of age and sold for \$250, at the same rate of interest the amount would, at the time of the last cutting, be \$4,000, so that by letting the trees stand after they were sixty years old there is a loss of the use of the land for sixty years, and the loss of \$200. If one, as above indicated, can get \$3,800 in 120 years from an acre, the land when the pines come up is worth \$14.84; reckoning money as before to double once in fifteen years. It must be remembered that all of these calculations are upon paper, but pines are a very sure crop and I have made these figures with great care, after much study of the subject and with an experience of years in thinning and growing timber. I would advise a man who wanted a good investment on long time, with the increase annually added to the principal, that an acre of white pines one year old, well started on almost any land not too far from market, is a good investment at from six to eight or twelve dollars per acre. At four feet apart there would be 2,722 tree plants to commence with, and thinning out so as to keep those left in rapid growth, I would, at forty-five years of age, have one hundred pines on the acre, and the 2,622 cut out would have furnished bean poles, stakes, fence poles, and shingle stuff, wood, and even small timber and box boards, and much more than paid for cutting, but are not reckoned in the above calculations. Trees feed principally through their leaves and must have good tops, and drink through their roots great amounts of water, and hence must have good amounts of tops and roots in order to grow rapidly, and must have sufficient space of air and root room.

Hon. B. F. Fernow, the present chief of the division of forestry, says the prospect is that a man who now invests in forest growth and attends to its management will, at the time of harvest, be repaid a hundred-fold without close financial calculations, and gives the following figures, viz.: An acre of

forest has cost to plant \$12. The thinnings cut out at thirty years of age are worth \$3.60; those cut at forty years of age, \$9.00; those cut out at fifty years, \$13.60, and the timber cut at sixty years of age worth \$35.0. If the acre be thinned at thirty years, and at forty-three and fifty-three, he computes the respective thinnings to be worth \$3.40, \$10, and \$13.90, and the timber is in this case to be cut at sixty-two years of age, and bring \$340 on the stump. Calling money worth three per cent, the acre managed the first way was worth \$65.84 as soon as the trees were set, and managed the second way it was worth \$58.94. The reader at once perceives that Mr. Fernow is more sanguine than myself, and his rate of interest low. If pines or other trees come up thick, I think they should be thinned out some half a dozen times before they are thirty years old. Thin early, often, and moderately is said to be the golden rule, but my friends usually leave too many standing, — more than can grow rapidly and to good size. Perhaps 160 or more box-board pines can be grown per acre in forty years at a good profit.

To return to the idea of the influence of forests upon rain-fall and climate, I do not wish to be understood as absolutely denying that they have any influence at all. In a State like Kansas, which was largely covered with buffalo grass, growing perhaps 300 pounds to the acre, which ripened the latter part of May and lay like a light, white thatch upon the hard, sun-baked, clayey soil, reflecting the sun's rays for months, the tendency of this condition would seem to be to drain off the little rain that falls, and to heat the air by reflection so that the showers would not be frequent or wet the soil much when they came. To plow this soil and grow from fifteen to forty tons of corn to the acre, would seem to have a tendency to lessen the temperature of the air by using up the heat in the production of this crop, instead of reflecting it back into the air, and hence to modify the temperature; and the ground being plowed would receive the rain and hold it till the growing crop would throw off much of it from its leaves, and this, and the evaporation directly from the soil, we must suppose, would make the air more moist and cool and the State more liable to have summer showers, and to be freed from those terrible hot winds which sometimes withered the growing crops.

It would seem that the greater the crop of any kind, from grass to trees, which grew upon the ground annually, the greater the amount of heat absorbed, and the greater the amount of moisture thrown into the air. This whole subject is very interesting, and I have searched long and found but few reliable and definite facts upon the subject. I am inclined to believe that if farmers and forest growers could store up and use the rain as their growing crops required the water, there would be little or none left to run off in our rivers in summer. Every plant, whether a grass or a tree, grows by taking up an immense amount of water from the ground through its roots, and transpiring it through its leaves into the air. It is estimated that a crop of corn which produces 100 bushels throws off during its growth from 480 to 630 tons of water. The amount taken up and thrown off by a thrifty tree during the months of its rapid growth is immense. The roots of a single tree will sometimes run into a well and cause it to become dry by taking up its water and through its leaves sending it into the air. Hence the ground upon which farm crops or trees are rapidly growing soon becomes dry, even after good showers.

Chief Fernow lays down as one of the true and proved principles that there should be an under or brush growth beneath the principal trees, that is, the trees being grown for a forest crop. He says this undergrowth prevents the drying effects of the sun and winds, and that the densely shaded soil offers more continuously favorable conditions of growth than the open, bare, or sodded ground. Were not this from the highest official authority upon forestry in the United States, I should be inclined to doubt its correctness. The thriftiest pines, oaks, elms, spruces, larches, walnuts, chestnuts, butternuts, apple trees, etc., I have ever seen, were growing on open land or in groves, without underbrush. One of the largest white pines I ever saw, and I am sure the largest valuable one I ever noticed of its age, grew in your Excellency's city of Dover, in the old road on or near the Emerson farm at Back river. I had inferred, from the trees in parks, pastures, and orchards, on road-sides and commons, that trees grew rapidly without undergrowth, and it had never occurred to me that it would improve the growth of trees in parks or orchards

to set them out to bushes. I have known people to cut bushes out of their orchards to better the trees, but never knew them to set bushes out for that purpose. I suppose that the great southern pine belt is the largest and intrinsically the most valuable forest of one species in our country, and this magnificent forest grew free from underbrush. My most thrifty acres of pines are free from undergrowth. The largest and thriftiest elms I ever saw as a forest growth were free from underbrush, and the best oak forest I ever owned was.

Chief Fernow says he has seen oaks some eighty years old left standing when clearing, and has seen them sicken and die at the tops till the young growth covered their feet, and then the oaks recover and grow rapidly. My idea was, that forest trees left at once exposed to the sunshine and storms would be stunted till they had time to get acclimated, and that in most cases they would in time recover and become vigorous, whether their feet were protected by bushes or the ground used for agricultural purposes. I admit that I should generally have thought it no wiser, but perhaps not quite so injurious, to set bushes in orchards or forests to keep the ground moist and make the trees grow, as it would be to set weeds among corn or potatoes for the same purposes. Chief Fernow states that oaks about 130 years old were thinned out and undergrown with beeches, and grew more rapidly. Well, my experience is, that trees grow more rapidly after being *properly* thinned, and I should have thought that their increase of growth was due to the thinning, and not to the undergrowth to which he attributes it. As to oaks in Germany, which, he says, grew better after they had an undergrowth instead of the land being pastured, I of course cannot speak, yet I think some stock, especially sheep, sometimes injure oaks and perhaps other trees by (it may be) the oil which comes off from them when rubbing against the trees. I think George W. Ela, Esq., of Allenstown, one of our most successful forest growers, knows something about this. Hon. Luther Hayes, of Milton, knows that oaks grew well in his cow pasture.

Mr. Fernow holds that an undergrowth prevents evaporation, and keeps the ground more moist. I think that weeds among hoed crops have a tendency to make the ground drier, and I did

not know but that bushes — tree weeds, as that careful, practical forester, J. L. Gerrish, of Webster, the “Will Tell” of the “People and Patriot,” calls them — might have the same effect. I hope that the forestry division will find out and inform the people as to the amount of water taken from the ground and thrown out through their leaves by trees and plants when rapidly and when slowly growing. In rapidly growing plants it is immense, and lands can sometimes be drained of their surplus water through the bodies of growing trees and off through their leaves. At Washington, in 1885, I sought information upon this very interesting subject of the amount of water taken from the land and thrown off by the leaves of trees and other plants, at the agricultural department, the Smithsonian Institution, and at the weather signal station, but with little success. At Dartmouth College, and at the city and the agricultural libraries in Boston, and at the Astor library in New York, and in the office of “Garden and Forest,” I fared about the same.

If I translate correctly the confounded foreign terms, some one finds that a stalk of Indian corn six feet in height, in a day’s sunshine of fourteen hours, will throw off about one pint of water. Watson concluded that an acre of grass might exhale thirty hogsheads of water a day. Lawes found that from 150 to 270 pounds of water pass through a plant for every pound of solid matter added to its weight. Hale found that a moderate-sized cabbage plant exhaled twenty-five ounces of water in twelve hours, and a sunflower three and one half feet high nearly two pounds in twelve hours of a warm, dry day. Recent experimenters find that a square foot of grass sod may throw off from two to five pounds of water in twenty-four hours. Knapp says that grass will exhale its own weight of water in a hot, dry day. Young plants throw off more water than old ones. Hellviegel found that barley threw off 310 pounds of water during its growth to each pound of its dry weight; wheat, 338 pounds; rye, 353 pounds; oats, 376 pounds; horse beans, 282 pounds; peas, 273 pounds; clover, 310 pounds; buckwheat, 363 pounds.

Asa Gray, the celebrated botanist, estimated that the Washington elm at Cambridge, covering less than one tenth of an acre, had, in its prime, seven million leaves, equal to about five

acres of surface. Unger found that about three times as much was evaporated from a water as from a leaf surface, and in this is confirmed by Sachs. It was found at Rostoc on the Baltic that in the six months from May to October, twenty-one and one half inches of water evaporated from an open water surface of one square meter in area, and that the evaporation from a water surface was a little over four and a half times that from the surface of a loam soil, and a little over four times that from a sand surface. By these measurements it would appear that the Washington elm would, during the months of its leafage, in atmospheric conditions like those at Rostic, evaporate (transpire) some thirty feet of water if thrifty and the ground kept wet.

Shulge found the evaporation from surfaces covered with water, nightshade, and grass to be respectively as follows. The measure is in lines.

	Water.	Nightshade.	Grass.
June	2.05	3.13	2.92
July	1.06	3.27	2.74
August	1.41	2.50	1.95
September . . . .	.81		1.44
October	1.36		.60

The plant *xeranthemum bracteatum* evaporated three times as much as a water surface.

Pfaff found his oak with over 700,000 leaves, from the 18th of May to October 24, transpired 264,000 pounds of water during the day time, which was eight and a half times the amount of rain-fall upon the area which the tree covered. Besides this, he says that about one fourth of the rain clung to the leaves and was evaporated therefrom and not included in his measurements. Vailant's oak, sixty-nine feet high and eight feet nine inches in circumference three feet three inches from the ground, transpired 4,400 pounds or 550 gallons of water in one fine summer's day. Having always understood that the woods were "dank and damp," and that their soil held the water back and gave it off slowly in summer, thus keeping the streams full during the dry season, I was surprised when working in the forest in summer to find the land "dry as ashes." No wonder that the farmer's crops first show signs of drought under his thrifty shade trees. No won-

der that certain swampy land can be drained by setting it to trees. No wonder that sometimes 'a family finds that a thrifty tree has sent its roots down into their never-failing well and drained it dry. Cut down, but do not trim out, your birches, poplars, and other quick decaying deciduous trees in summer, and their leaves will throw out the water and season the wood.

Professor Storer of Harvard College, Young, an English author, and Lawes, the famous English experimental farmer, know considerable about this important subject, but so far as I know no one has all the information desirable. Nearly twenty years ago a late and noted editor of one of the Boston agricultural newspapers thought my asking questions about this subject denoted lack of common sense. Its importance is now quite generally recognized. If I remember correctly, Lawes says that there is not rain-fall enough in rainy England to supply the needs of the greatest possible wheat crop.

The chief of the forestry division, the next year after my inquiries of him (Agricultural Report, 1886, page 153), calls attention to this subject and lays down certain propositions which he considers proved. His second proposition is this, viz.: Where a superfluity of moisture used to be removed by this process [by growing trees], de-forestation often induces a formation of marshes, etc. His third proposition is this, viz.: In consequence of de-forestation, evaporation from the soil is augmented and accelerated, resulting in an unfavorable influence on soil humidity, etc. Does this third proposition contradict the second, or may it in certain cases? I am like the poor blind-folded man, or a child in the night crying out for light. If Chief Fernow be right in urging the growing of bushes under forest trees, it must be that these bushes, growing slowly, throw off but little water. More light is wanted upon this subject.

I have often urged the importance of thinning young forests, and quote the following proofs in its favor from the Annual Report of the Division of Forestry, of 1887, where I think these reports mention it for the first time: A part of a lot of natural growth of Scotch pines was thinned when six years old, and grew three times as fast as the part left unthinned. A fifty-two years' growth of Norway spruce had been thinned twice and showed in the

thinned part an average growth of twenty-two per cent over a part of the lot which had not been thinned. A natural growth of spruce, slightly mixed with maple, aspen, willow, and iron-wood, when it was fifteen years old was opened to the poor people to take out fire-wood ; thus half of the growth for a few years was thinned out irregularly. The part thus thinned, eighteen years later, contained four and a half times more wood than the unthinned part. The part thinned had trees from one to nine inches in diameter, and fifteen to sixty-five feet in height, while the unthinned part had no trees over five inches in diameter and forty-eight feet in height.

A pine growth fifty years old showed that, by thinning, the rate of growth within eleven years stood three to one in favor of the thinned part. One writer says that by thinning when the trees are from 15 to 20 years of age one will in 60 years get what it would take 100 or 150 years to grow if left unthinned. One person sowed Norway spruce, and when they had grown 33 years they were so dense as to be impenetrable, with hardly any gain in size, and the trees were covered with moss. At 35 years of age they were thinned and again when 42 years old. Between the two thinnings the growth of the trees had increased 160 per cent, or 27 per cent yearly, and the trees looked better. Oak sprouts when 15 years old were thinned on part of a lot and the other part left unthinned. All were cut at 20 years of age and the part thinned brought $14\frac{1}{2}$ per cent more than the unthinned.

I fully believe that by proper management the annual lumber crop of New Hampshire can be increased three or four fold without increasing its acreage, and that much money is to come to our forest owners by more knowledge of the very important subject of forestry.

Most respectfully submitted.

J. D. LYMAN.

AGRICULTURAL STATISTICS.

On March 20, 1889, the following circular was sent :

STATE OF NEW HAMPSHIRE.

BOARD OF AGRICULTURE.

OFFICE OF SECRETARY,

CONCORD, N. H., March 20, 1889.

To the Selectmen and Assessors of the several Towns and Cities of the State :

Please make return, on or before May 1, 1889, to the secretary of the State Board of Agriculture, Concord, N. H., answers as correct as practicable to the following interrogatories in regard to the results of agriculture in your town or ward for the year 1888, agreeable to section 6, chapter 12, General Laws of New Hampshire.

“ The selectmen or assessors of the several towns and cities of the State are hereby required to make inquiries at the time of taking the inventory in April of each year, and prior to the first day of May following, and respond to interrogatories previously furnished by the secretary in regard to the results of agricultural investments and labor, and the prosperity of the farming population.”

N. J. BACHELDER, *Secretary.*

Reports were received with commendable promptness from nearly every town and ward in the State, and, although not entirely correct in every instance, they go far towards indicating the productions of New Hampshire farms in the lines investigated. A continuation of this system of inquiry, or a better one, for a series of years will result in reports of interest and value, from which we shall be able to study the law of cause and effect, as indicated by a comparison of the different years, in the agricultural development of the State. Following are the reports received in regard to the subjects named for the year 1888. The products of creameries in the State are not included, but will be found elsewhere in this report.

	Pounds of butter.	Pounds of cheese.	Gallons of milk sold.	Pounds of wool.	Tons of ensilage.	Commercial fertilizer used.	Cash from summer boarders.
Acworth.....	34,280	.....	853	16,517	12	21	\$1,500
Alexandria.....	21,620	700	.....	4,430	.....	25	1,000
Allenstown.....	20,000	.....	3,000	250	40	10	.....
Alton.....	22,533	1,860	41,353	1,766	80	16	1,910
Alstead.....	27,280	300	18,415	6,914	451	22	345
Amherst.....	22,050	.....	230,200	75	645	30	1,535
Andover.....	8,500	1,075	.....	90	.....	.....	2,680
Ashland.....	7,213	.....	7,925	369	10	4	75
Atkinson.....	5,050	.....	179,000	.....	.....	25	800
Auburn.....	17,325	.....	30,827	112	.....	15	2,050
Barrington.....	8,000	.....	77,380	1,000	250	40	.....
Bartlett.....	5,000	.....	10,000	500	50	4	.....
Barnstead.....	34,394	1,550	10,560	15	22	.....	1,708
Bath.....	82,875	2,660	1,500	20,417	.....	40	2,000
Bedford.....	22,000	.....	260,000	150	1,200	25	.....
Berlin.....	3,500	.....	20,000	500	.....	15	.....
Bethlehem.....	39,970	1,125	6,050	883	.....	4	169,100
Belmont.....	30,432	1,504	43,762	954	89	28	5,915
Benton.....	5,000	2,000	.....	1,000	.....	5	500
Bennington.....	3,545	.....	31,746	240	105	13	1,550
Boscawen.....	15,150	1,460	19,818	1,870	35	20	.....
Bristol.....	81,000	270	29,835	580	150	3	234
Bradford.....	63,420	720	42,000	4,000	100	12	14,000
Brookline.....	6,000	.....	2,875	.....	114	3	500
Brookfield.....	6,700	240	550	904	.....	7	200
Bridgewater.....	11,372	1,700	1,250	2,797	20	11	2,650
Brentwood.....	24,940	.....	48,612	815	112	30	.....
Candia.....	35,000	500	7,300	310	40	25	3,000
Carroll.....	15,000	300	33,785	240	5	15	318,300
Cauterbury.....	36,478	2,960	45,737	6,817	25	27	1,809
Canaan.....	44,165	9,260	1,115	12,034	160	15	2,355
Campton.....	40,900	8,705	752	3,804	182	32	17,030
Center Harbor.....	16,000	1,700	1,930	1,296	50	7	28,618
Charlestown.....	45,005	36,231	18,978	27,613	126	44	3,975
Chichester.....	17,610	1,415	60,145	2,287	662	20	1,000
Chesterfield.....	41,450	500	566	1,689	40	30	6,000
Chatham.....	.....	.....	.....	600	.....	5	500
Claremont.....	77,195	2,280	70,140	14,858	18	41	455
Clarksville.....	16,000	2,000	.....	3,820	.....	2	.....
Concord (Ward 3).....	10,600	2,350	38,000	451	300	16	500
Conway.....	74,860	240	13,520	825	.....	55	130,140
Columbia.....	30,000	4,000	.....	4,000	.....	15	4,000
Colebrook.....	45,325	3,275	.....	7,150	.....	36	.....
Cornish.....	54,177	1,090	2,790	20,040	.....	30	156
Croydon.....	30,000	1,500	.....	6,365	.....	20	500
Dalton.....	38,180	.....	6,000	3,403	150	6	.....
Danbury.....	24,400	3,985	488	5,580	195	17	733
Deerfield.....	51,670	3,585	13,766	2,251	65	31	320
Deering.....	15,053	100	6,700	926	150	27	1,300
Derry.....	16,210	.....	227,539	.....	300	23	.....
Dorchester.....	9,960	350	.....	3,536	.....	8	40
Dover (Ward 1).....	10,000	.....	182,500	800	200	100	.....
Dummer.....	50,800	.....	.....	1,680	.....	5	.....
Durham.....	73,000	300	61,880	2,200	800	50	300
Dublin.....	25,184	.....	6,116	376	75	16	40,000
Dunbarton.....	35,780	115	96,946	905	232	23	560
Easton.....	6,120	625	183	1,211	.....	1	.....
East Kingston.....	10,627	900	12,750	325	20	7	.....
Eaton.....	.....	.....	.....	500	.....	4	200
Effingham.....	4,005	.....	202	190	.....	8	125
Enfield.....	54,500	17,000	2,000	13,100	400	35	3,500
Epping.....	23,614	934	57,453	1,616	195	20	872
Epsom.....	12,165	450	33,244	1,576	300	24	.....
Errol.....	800	.....	100	600	.....	.....	.....
Exeter.....	73,15	500	68,290	630	175	25	1,100

	Pounds of butter.	Pounds of cheese.	Gallons of milk sold.	Pounds of wool.	Tons of ensilage.	Commercial fertilizer used.	Cash from summer boarders.
Ellsworth.....	2,000	.....	.....	784	.....	.....	.....
Farmington.....	2,343	800	55,370	1,054	111	50	\$525
Fitzwilliam.....	40,000	.....	4,500	500	15	20	5,000
Franconia.....	40,000	500	5,000	1,100	.....	10	125,000
Franklin.....	35,250	400	70,150	2,400	545	60	400
Freedom.....	18,850	200	615	1,312	45	14	366
Fremont.....	3,040	350	26,130	702	95	8	.....
Gilsum.....	2,000	.....	2,650	2,300	150	.....	500
Gilmanton.....	34,185	7,190	6,093	4,507	127	28	2,450
Goffstown.....	1,200	200	600,000	1,660	800	50	5,000
Gorham.....	3,500	.....	15,000	400	.....	10	2,500
Goshen.....	9,825	.....	65	2,352	.....	10	50
Groton.....	12,810	200	100	3,486	.....	6	.....
Grantham.....	8,400	685	481	3,000	83	10	.....
Greenville.....	31,900	.....	33,580	.....	100	20	500
Greenfield.....	8,000	.....	102,200	840	100	20	.....
Grafton.....	24,960	6,429	380	7,393	100	18	.....
Greenland.....	1,495	198,476	.....	424	.....	71	.....
Hampton.....	.....	.....	.....	500	4	10	60,000
Hampstead.....	27,000	.....	5,000	48	.....	25	500
Hampton Falls.....	14,560	.....	105,000	600	450	200	.....
Harrisville.....	15,000	.....	4,500	2,150	150	40	800
Hancock.....	16,865	.....	78,968	550	175	16	4,167
Hanover.....	151,848	2,190	42,216	23,492	1,128	47	190
Henniker.....	80,620	3,840	40,000	2,180	400	50	.....
Hebron.....	15,000	400	.....	2,095	.....	2	1,400
Hinsdale.....	65,000	.....	50,800	1,250	700	90	2,000
Hill.....	24,960	425	3,650	4,620	50	25	2,500
Holderness.....	23,000	.....	.....	1,800	30	12	14,000
Hooksett.....	15,289	.....	189,736	171	190	16	.....
Hopkinton.....	82,633	4,730	51,500	2,965	355	44	9,000
Hollis.....	24,425	.....	268,481	160	380	80	310
Hudson.....	10,153	.....	151,419	311	160	41	287
Jackson.....	.....	.....	.....	.....	.....	15	60,000
Jaffrey.....	59,260	120	13,719	520	18	30	16,315
Jefferson.....	5,450	500	500	1,850	200	10	30,000
Keene.....	90,460	2,549	160,670	1,584	725	79	1,207
Kensington.....	15,970	700	109,200	1,200	125	35	.....
Kingston.....	17,004	.....	76,024	275	90	50	400
Landaff.....	29,260	1,785	211	4,566	.....	18	443
Langdon.....	12,728	.....	.....	4,750	60	15	.....
Lancaster.....	59,500	.....	14,600	5,500	300	30	5,900
Laconia.....	4,000	.....	3,000	525	125	27	.....
Lempster.....	14,325	425	.....	1,266	50	.....	.....
Lee.....	1,500	200	46,355	1,250	800	12	100
Lebanon.....	25,000	4,000	52,980	31,031	350	50	.....
Littleton.....	125,000	.....	31,025	8,314	.....	40	30,000
Litchfield.....	5,000	.....	42,000	200	.....	15	300
Lisbon.....	85,600	11,635	14,140	7,075	.....	45	100,000
Londonderry.....	5,000	.....	225,844	395	600	150	1,000
Loudon.....	60,000	.....	.....	3,770	40	.....	.....
Lyme.....	72,398	1,569	.....	47,880	105	55	.....
Lyndeborough.....	36,700	.....	266,560	175	490	25	2,000
Lyman.....	72,300	2,000	.....	4,026	.....	10	.....
Mason.....	24,054	200	55,218	140	345	18	.....
Madison.....	5,000	.....	1,000	560	.....	5	1,000
Marlow.....	4,600	600	1,800	4,500	100	20	.....
Marlborough.....	7,000	.....	20,000	480	260	22	.....
Madbury.....	23,883	25	38,198	846	175	15	16
Merrimack.....	62,719	400	110,349	749	415	44	200
Meredith.....	42,811	3,000	16,475	618	360	23	2,130
Milan.....	28,500	100	59,605	2,820	.....	30	.....
Milford.....	19,500	.....	349,520	100	1,150	150	2,000
Mont Vernon.....	12,221	.....	58,925	.....	550	15	14,400
Monroe.....	54,370	272	.....	3,940	.....	13	.....

	Pounds of butter.	Pounds of cheese.	Gallons of milk sold.	Pounds of wool.	Tons of ensilage.	Commercial fertilizer used.	Cash from summer boarders.
New Boston.....	15,000	.....	70,000	1,275	15	20	\$2,500
New Durham.....	42,000	1,000	16,000	660	50	35	200
New Hampton.....	64,896	1,000	9,125	2,545	200	200	500
New London.....	26,100	600	2,792	4,005	115	12	7,225
Newton.....	7,928	.....	18,219	210	500	100	1,014
Nelson.....	12,775	.....	1,855	2,410	10	6	110
Newcastle.....	2,155	.....	48,200	.....	.....	.....	75,000
Newmarket.....	18,580	.....	121,190	580	95	20	280
Newington.....	12,110	200	136,072	350	20	4	20
Newport.....	60,385	3,820	17,150	5,432	150	40	3,550
North Hampton.....	5,200	345,000	.....	756	180	25	10,000
Northfield.....	30,721	2,920	8,655	1,865	100	25	1,000
Northwood.....	3,600	1,000	2,400	860	15	50	1,500
Nottingham.....	30,650	470	24,496	1,100	.....	12	.....
Orford.....	8,320	2,000	.....	19,000	25	30	.....
Orange.....	15,000	.....	.....	3,000	20	4	.....
Ossipee.....	26,100	200	10,049	1,256	7	50	3,450
Pelham.....	5,000	.....	238,251	.....	.....	124	.....
Peterborough.....	9,535	.....	94,129	495	147	47	4,125
Pittsfield.....	46,800	600	135,000	1,650	200	50	2,000
Piermont.....	123,309	2,000	.....	10,500	.....	25	.....
Plainfield.....	51,290	2,435	353	39,735	.....	22	.....
Plymouth.....	30,000	2,000	24,000	2,333	525	22	40
Plaistow.....	2,375	.....	166,070	.....	25	6	.....
Randolph.....	6,150	.....	.....	500	.....	3	5,000
Raymond.....	28,900	1,000	10,500	1,300	.....	25	2,865
Richmond.....	18,396	1,928	655	907	32	12	.....
Rindge.....	57,875	.....	.....	2,116	160	78	2,000
Rochester.....	.....	.....	171,550	1,400	.....	80	.....
Roxbury.....	11,600	.....	.....	1,060	.....	5	.....
Rumney.....	53,150	2,260	.....	2,816	54	75	1,180
Rye.....	5,000	.....	360,000	238	30	25	60,000
Sanbornton.....	60,000	1,000	20,000	5,500	400	25	5,000
Sandown.....	400	100	17,778	200	.....	70	1,000
Sandwich.....	103,500	200	.....	4,215	90	100	6,500
Salisbury.....	38,704	8,109	.....	12,111	.....	17	533
Salem.....	19,000	.....	100,000	265	.....	36	500
Seabrook.....	4,354	.....	17,771	100	.....	10	.....
Sharon.....	7,860	.....	.....	155	40	5	.....
Shelburne.....	15,700	.....	.....	505	20	6	7,000
Somersworth.....	5,480	.....	46,737	240	60	5	.....
South Newmarket.....	3,455	.....	5,000	270	.....	20	.....
South Hampton.....	14,000	70	3,117	500	.....	30	200
Stratham.....	4,555	.....	172,808	1,115	.....	58	63
Stewartstown.....	36,150	3,500	.....	6,436	.....	22	.....
Stark.....	19,045	.....	250	1,326	.....	9	.....
Stoddard.....	19,500	.....	.....	2,077	68	4	600
Springfield.....	20,389	970	100	6,521	150	11	452
Sunapee.....	6,450	1,000	3,000	850	.....	6	7,550
Surry.....	13,900	60	122	3,016	233	67	460
Sullivan.....	17,395	600	296	2,758	274	16	130
Swanzy.....	100,000	1,000	5,000	3,045	75	65	1,500
Tamworth.....	30,000	.....	.....	2,000	.....	20	6,000
Temple.....	15,450	.....	156,880	232	680	210	1,050
Thornton.....	28,560	500	100	1,750	100	15	1,000
Tilton.....	12,348	150	26,539	7,000	110	11	2,700
Troy.....	11,520	150	5,279	73	10	5	582
Tuftonborough.....	19,768	954	439	1,006	12	20	4,448
Unity.....	18,906	1,140	930	8,155	.....	17	500
Walpole.....	79,800	.....	20,000	60,000	500	100	4,000
Waterville.....	300	.....	10,800	16	.....	1	7,000
Washington.....	20,395	540	1,156	2,101	196	15	1,650
Wakefield.....	80,650	.....	6,160	1,250	25	37	8,175
Warren.....	12,631	1,299	1,016	2,713	.....	16	.....
Warner.....	97,950	7,000	18,000	6,925	20	20	3,000

	Pounds of butter.	Pounds of cheese.	Gallons of milk sold.	Pounds of wool.	Tons of ensilage.	Commercial fertilizer used.	Cash from sum m e r boarders.
Wentworth	37,637	2,390	854	2,331	40	14	\$1,100
Webster.....	26,118	6,357	290	6,138	85	18	1,050
Westmoreland	90,000	2,700	.....	6,902	20	75	1,000
Wentworth's Location..	1,000	.....	100	300	.....	.....	.....
Whitefield	49,327	200	10,663	794	1,071	25	7,000
Wilton	12,000	..	3,000	375	210	80	500
Windsor.....	3,550	300	.....	250	.....	8	.....
Wilmot.....	19,748	1,125	.....	6,575	.....	.....	.....
Winchester	46,569	400	12,512	2,034	150	39	.....
Windham	10,845	.....	185,020	392	150	26	1,170
Wolfeborough.....	20,000	.....	36,500	1,200	200	75	25,000
Woodstock	5,472	.....	1,974	444	.....	5	16,600

THE OLEOMARGARINE LAW.

At the annual meeting of the State Board of Agriculture, held August 31, 1888, the following circular was ordered sent to all dealers in imitation butter in the State :

STATE OF NEW HAMPSHIRE.

BOARD OF AGRICULTURE.

To Dealers in Imitation Butter :

Your attention is hereby called to the following law, passed at the session of the Legislature in 1885 :

Be it enacted by the Senate and House of Representatives in General Court convened :

SECTION 1. Whoever by himself or his agent shall sell, expose for sale, or have in his possession with intent to sell, any article or compound made in imitation of butter or as a substitute for butter, and not wholly made from milk or cream, and that is of any other color than pink, shall, for every package that he or they sell or expose for sale, forfeit and pay a fine of fifty dollars, and for a second and each subsequent offence a fine of one hundred dollars, to be recovered with costs in any court of this State of competent jurisdiction; and any fine so recovered and paid shall go one half to the complainant and one half to the county where such offence was committed.

SECT. 2. The complainant in any action brought under section 1 of this act, or the health officers of any city or town, may cause specimens of suspected butter to be analyzed or otherwise satisfactorily tested as to color and compounds; and a certificate of the analysis, sworn to by the analyzer, shall be admitted in evidence in all prosecutions under this act. The expense of such analysis or test, not exceeding twenty dollars in any one case, may be included in the costs of prosecutions in all cases prosecuted under this act.

SECT. 3. For the purpose of this act the term butter shall be understood to mean the product usually known by that name, and which is manufactured ex-

clusively from milk or cream, or both, with salt, and with or without coloring matter.

SECT. 4. This act shall take effect upon its passage.

[Approved August 26, 1885.]

In the interest of agriculture, and for the protection of consumers, the State Board of Agriculture will require the enforcement of the above law, and due notice of this intention is hereby given all dealers in imitation butter or substitutes for butter.

The circular was sent as directed. The secretary of the Board was informed a few weeks later that the law was being violated in Nashua and Manchester. Proceedings were immediately commenced in all cases where complaint of violations of the law was made, resulting in prosecutions against Blain & Lussier, Morin & Lucier, of Nashua, Pinard & Therrien and A. G. Grenier, of Manchester. After repeated attempts the case of Morin & Lucier was brought to trial at the May term of court, at Manchester, in 1889. The counsel employed by the defence were among the ablest in the State, while the case for the State was handled by County Solicitor R. M. Wallace, of Milford, in which county the prosecutions were brought. The defence had also in their employ the most skilled experts in Massachusetts, the oleomargarine manufacturers furnishing the sinews of war for the contest. The defence was made upon the ground that it was impossible to color oleomargarine the tint required by law. Evidence was submitted proving that such coloring was possible, and the jury promptly returned a verdict accordingly. The other parties against whom prosecutions had been made plead guilty without contending. The constitutionality of the law having been previously decided by the supreme court, its practical working in these cases demonstrates its fitness for the purpose designed. Not only is it possible but practicable, inexpensive, and harmless to color oleomargarine and other imitations of butter the color of pink, and any change or modification of the law is in no way desired.

LIST OF BOARDS OF AGRICULTURE, AND STATE OFFICIALS FOR AGRICULTURE IN THE SEVERAL STATES,

With names and addresses of officials to whom application may be made for information regarding agricultural affairs.

Alabama — Montgomery : Commissioner of Agriculture, R. F. Kolb.
Arkansas — Little Rock : Secretary of State and Compiler of Agricultural Statistics, Hon. Jacob Frolich.

California — Sacramento : State Board of Agriculture, Edwin F. Smith, secretary.

Colorado — Fort Collins : State Board of Agriculture, Frank J. Annis, secretary.

Connecticut — West Cornwall : State Board of Agriculture, T. S. Gold, secretary.

Dakota — Pierre : Compiler of Agricultural Statistics, P. F. McClure.

Delaware — Dover : State Board of Agriculture, M. Hayes, secretary.

Florida — Tallahassee : Commissioner of Lands and Immigration, C. L. Mitchell.

Georgia — Atlanta : Commissioner of Agriculture, J. T. Henderson.

Illinois — Springfield : State Board of Agriculture, Charles F. Mills, secretary.

Indiana — Indianapolis : State Board of Agriculture, Alexander Heron, secretary.

Iowa — Des Moines : State Board of Agriculture, J. R. Shaffer, secretary.

Kansas — Topeka : State Board of Agriculture, Martin Mohler, secretary.

Kentucky — Frankfort : Commissioner of Agriculture, C. Y. Wilson.

Louisiana — Baton Rouge : Commissioner of Agriculture, T. J. Bird.

Maine — North Green : State Board of Agriculture, Z. A. Gilbert, secretary.

Maryland — Baltimore : State Farmers' Association, William B. Sands, secretary, 117 South Gay street.

Massachusetts — Boston : State Board of Agriculture, William R. Sessions, secretary.

Michigan — Agricultural College : State Board of Agriculture, H. G. Reynolds, secretary.

Minnesota — Minneapolis : Superintendent Farmers' Institutes, O. C. Gregg.

Mississippi — Jackson : Commissioner of Immigration and Agriculture, George W. Carlisle.

Missouri — Columbia : State Board of Agriculture, J. W. Sanborn, secretary.

Montana — Helena : Agricultural, Mineral, and Mechanical Association, Francis Pope, secretary.

Nebraska — Brownville : State Board of Agriculture, R. W. Furnas, secretary.

Nevada — Winnemucca : Live-Stock Association, G. S. Nixon, secretary.

New Hampshire — Concord : State Board of Agriculture, N. J. Bachelder, secretary.

New Jersey — Trenton : State Board of Agriculture, Franklin Dye, secretary.

New York — Albany : State Agricultural Society, J. S. Woodward, secretary.

North Carolina — Raleigh : Commissioner of Agriculture, ———.

Ohio — Columbus : State Board of Agriculture, L. H. Bonham, secretary.

Pennsylvania — Harrisburg : State Board of Agriculture, Thomas J. Edge, secretary.

South Carolina — Columbia : Commissioner of Agriculture, A. P. Butler.

Tennessee — Nashville : Commissioner of Agriculture, B. M. Hord.

Texas — Dallas : State Fair Association, Sydney Smith, secretary.

Utah — Paradise : Farmers and Gardeners' Club, J. R. Lofthouse, secretary.

Vermont — Burlington : State Board of Agriculture, W. W. Cooke, secretary.

Virginia — Richmond : Department of Agriculture, T. Whitehead, commissioner.

Washington Territory — Olympia : Washington Industrial Association, L. P. Venen, secretary.

West Virginia — Wheeling: Exposition & State Fair Association, George Hook, Secretary.

Wisconsin — Madison: Superintendent Farmers' Institutes, W. H. Morrison.

Wyoming — Cheyenne: Fair Association, F. W. Lafrentz, secretary.

LIST OF AGRICULTURAL EXPERIMENT STATIONS

IN THE UNITED STATES, WITH NAMES OF DIRECTORS AND ADDRESSES.*

Washington, D. C. — U. S. Department of Agriculture : Hon. J. M. Rusk, secretary of agriculture ; Hon. Edwin Willits, assistant secretary. Office of Experiment Stations : W. O. Atwater, director ; A. W. Harris, assistant director.

Alabama — Auburn : Agricultural Experiment Station of the Agricultural and Mechanical College of Alabama, J. S. Newman, director. Uniontown : * Canebrake Agricultural Experiment Station, W. H. Newman, assistant director in charge.

Arkansas — Fayetteville : Arkansas Agricultural Experiment Station, A. E. Menke, D. Sc., director.

California — Berkeley : * Agricultural Experiment Station of the University of California, E. W. Hilgard, Ph. D., LL. D., director.

Colorado — Fort Collins : Agricultural Experiment Station of Colorado, Charles L. Ingersoll, M. S., director.

Connecticut — New Haven : The Connecticut Agricultural Experiment Station, S. W. Johnson, M. A., director. Storrs : * Storrs School Agricultural Experiment Station, W. O. Atwater, Ph. D., director.

Dakota — Brookings : Dakota Agricultural Experiment Station, Lewis McLouth, Ph. D., director.

Delaware — Newark : The Delaware College Agricultural Experiment Station, Arthur T. Neale, Ph. D., director.

Florida — Lake City : Agricultural Experiment Station of Florida, J. P. DePass, director.

* In the cases indicated by asterisks in the list it is the desire of the stations that mail be addressed, not to the directors but to the stations.

Georgia—Athens: *Georgia Agricultural Experiment Station, W. L. Jones, M. D., director.

Illinois—Champaign: Agricultural Experiment Station of the University of Illinois, Selim H. Peabody, Ph. D., LL. D., director.

Indiana—La Fayette: Agricultural Experiment Station of Indiana, Horace E. Stockbridge, Ph. D., director.

Iowa—Ames: Iowa Agricultural Experiment Station, R. P. Speer, director.

Kansas—Manhattan: Kansas Agricultural Experiment Station, E. M. Shelton, M. Sc., director.

Kentucky—Lexington: Kentucky Agricultural Experiment Station, M. A. Scovell, M. S., director.

Louisiana—Audubon Park, New Orleans: Sugar Experiment Station No. 1, William C. Stubbs, Ph. D., director. Baton Rouge: State Experiment Station No. 2, William C. Stubbs, Ph. D., director. Calhoun: North Louisiana Experiment Station No. 3, William C. Stubbs, Ph. D., director.

Maine—Orono: Maine State College Agricultural Experiment Station, W. H. Jordan, M. S., director.

Maryland—Agricultural College: Maryland Agricultural Experiment Station, Henry E. Alvord, C. E., director.

Massachusetts—Amherst: Massachusetts State Agricultural Experiment Station, Charles A. Goessmann, Ph. D., director. Amherst: *Hatch Experiment Station of the Massachusetts Agricultural College, Henry H. Goodell, M. A., director.

Michigan—Agricultural College: Experiment Station of Michigan Agricultural College, Robert C. Kedzie, M. D., acting director.

Minnesota—St. Anthony Park: Agricultural Experiment Station of the University of Minnesota, N. W. McLain, LL. B., director.

Mississippi—Agricultural College: Mississippi Agricultural Experiment Station, S. M. Tracy, M. S., director.

Missouri—Columbia: Missouri Agricultural College Experiment Station, J. W. Sanborn, B. S., director.

Nebraska—Lincoln: Agricultural Experiment Station of Nebraska, Charles E. Bessey, Ph. D., director.

Nevada—Reno: Nevada State Agricultural Station, Le Roy D. Brown, Ph. D., director.

New Hampshire—Hanover: New Hampshire Agricultural Experiment Station, G. H. Whitчер, B. S., director.

New Jersey—New Brunswick: New Jersey State Agricultural Experiment Station, George H. Cook, LL. D., director. New Brunswick: New Jersey Agricultural College Experiment Station, George H. Cook, LL. D., director.

New York — Geneva: New York Agricultural Experiment Station, Peter Collier, Ph. D., director. Ithaca: Cornell University Agricultural Experiment Station, Isaac Phillips Roberts, M. Agr., director.

North Carolina — Raleigh: North Carolina Agricultural Experiment Station, H. B. Battle, Ph. D., director.

Ohio — Columbus: Ohio Agricultural Experiment Station, Charles E. Thorne, director.

Oregon — Corvallis: Oregon Experiment Station, E. Grimm, B. Sc., director.

Pennsylvania — State College: The Pennsylvania State College Agricultural Experiment Station, H. P. Armsby, Ph. D., director.

Rhode Island — Kingston: Rhode Island State Agricultural Experiment Station, Charles O. Flagg, B. S., director *pro tempore*.

South Carolina — Columbia: South Carolina Agricultural Experiment Station, J. M. McBryde, Ph. D., LL. D., director.

Tennessee — Knoxville: Tennessee Agricultural Experiment Station, Charles W. Dabney, Jr., Ph. D., director.

Texas — College Station: Texas Agricultural Experiment Station, F. A. Gulley, M. Sc., director.

Vermont — Burlington: Vermont State Agricultural Experiment Station, W. W. Cooke, M. A., director.

Virginia — Blacksburg: Virginia Agricultural Experiment Station, William Ballard Preston, director.

West Virginia — Morgantown: West Virginia Experiment Station, John A. Myers, M. A., director.

Wisconsin — Madison: Agricultural Experiment Station of the University of Wisconsin, W. A. Henry, B. Agr., director.

AMOUNT OF RAIN AND SNOW.

BY HON. WILLIAM L. FOSTER.

Amount of Rain and Snow from June 1, 1888, to June 30, 1889, inclusive. The rain is expressed in inches and hundredths of an inch, the snow in inches.

June, 1888.	July, 1888.	August, 1888.	September, 1888.	October, 1888.	October, 1888.	November, 1888.	November, 1888.	December, 1888.	December, 1888.	January, 1889.	January, 1889.	February, 1889.	February, 1889.	March, 1889.	March, 1889.	April, 1889.	April, 1889.	May, 1889.	June, 1889.	
R.	R.	R.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	R.	R.	
...	.01	.24	2.35	...	...	.85	...	...	...	...	...	...	...	...	...	3	...	...	.20
...	...	...	...	...	...	.15	...	...	...	...	...	...	...	...	...	...	...	...	.80
...	...	.05	...	...	...	...	.10	...	...	...	...	1	...	...	...	...	.03	.19	...
...	.16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
.01	...	.54	...	...	...	.54	...	...	...	...	.20	...	.34	...	...	...	...	...	...
1.20	...	...	...	...	...	.60	...	...	...	...	.43	...	...	...	...	...	...	...	...
...	...	.02	.95	...	...	...	...	...	...	...	...	...	...	2	1.80	...	...	...	.57
...	...	...	...	...	.01	...	...	3	...	...	.38	1	...	...	...	...	...	...	.02
...	.18	...	...	...	...	...	1.32	...	...	...	...	...	...	...	...	...	...	...	.75
...	...	...	...	...	...	...	...	...	.26	...	...	...	...	...	...	...	...	...	.02
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.08
...	
...	...	1.82	...	.17	.30	...	...	...	...	...	...	7	...	...	...	...	...	...	.31
...	.20	...	...	...	.20	...	...	...	...	...	...	...	...	...	...	...	...	...	.20
...	...	...	...	...	...	.08	...	...	...	...	...	...	...	...	...	...	...	...	...
...	.12	...	...	...	...	...	.81	...	...	...	...	...	...	...	...	...	...	...	.61
...	...	...	.48	.06	...	.02	...	...	...	...	...	...	...	...	...	...	...	...	.12
...	...	.20	...	.61	...	...	...	2.12	...	.90	...	.15	...	.12	...	...	...	...	.28
...	...	...	1.70	...	...	...	...	2	...	...	...	2	.45	...	.02	...	...	...	...
...	.35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	.12	...	...	.52	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	.20	...	3.66	...	...	...	...	...	...	10	...	...	...	...	...	...	...	1.04	...
...	...	.80	.01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.03
...	.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	.50	...	...	...	.88	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	.03	...	...	...	...	5	.41	...	...	...	...	...	...	...	...	...	...	...	.65
...	.12	...	1.65	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.75
...	...	.24	...	...	...	...	.51	...	.45	3	.20	1	...	...	...	...	...	...	.13
...01	
...85	
...	.04	.02060614	
...	
...	2	
2.57	.96	3.67	10.97	...	5.63	5	3	78	5	2.83	13	2.11	12	.94	4	2.21	3	1.79	2.46	4.21

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R E P O R T

O F T H E

A D J U T A N T - G E N E R A L

O F T H E

S T A T E O F N E W H A M P S H I R E ,

F O R T H E Y E A R E N D I N G

M A Y 3 1 , 1 8 8 9 .

M A N C H E S T E R :

J O H N B . C L A R K E , P U B L I C P R I N T E R .

1 8 8 9 .

ADJUTANT-GENERAL'S REPORT.

STATE OF NEW HAMPSHIRE,
ADJUTANT-GENERAL'S OFFICE,
CONCORD, May 31, 1889.

His Excellency Charles H. Sawyer, Governor and Commander-in-Chief, and the Honorable Council :

GENTLEMEN, — I have the honor to present for your consideration my annual report for the year ending May 31, 1889, with accompanying papers.

During the year no companies have been disbanded or new companies mustered, and the organization of the brigade remains, as regards the location of companies, the same as at date of last report, with the full number of companies of infantry (twenty-four), and the battery, and troop of cavalry, allowed by law. The strength of the brigade is 123 commissioned officers and 1,140 enlisted men; aggregate, 1,263.

UNIFORMS AND EQUIPMENTS.

The new uniforms furnished last spring, just before the encampment, give general satisfaction; the white facings do not appear to become soiled as readily as was at first feared, and with ordinary care the clothing will last many years. There are few States whose troops conform so closely to the uniform, tactics, regulations, and customs of the regular army as the New Hampshire National Guard.

The arms and equipments are in good condition, with the exception of the infantry waist-belts and cartridge-boxes. The latter will have to be replaced next year and can be drawn from the United States government. I have an order now in for new belts, which will undoubtedly be filled soon.

I have drawn from the United States, and issued, saber belts for the artillery and cavalry, and, in addition to the infantry blankets received last year, have drawn a supply of haversacks and canteens sufficient for such part of the troops as would be likely to be required under a call from the general government or the Executive of the State. These it is my purpose to hold ready to issue in an emergency.

ENCAMPMENT.

The encampment for 1888 is universally conceded to have been the most successful in every particular ever held in this State. The tour of duty was for seven days, June 9 to 15 inclusive, including Sunday, June 10, which was a model "Sunday in camp," demonstrating for the second time in the past ten years that the discipline of the New Hampshire National Guard is such that it is perfectly practicable and safe to have an encampment include the Sabbath.

The Governor and Staff were quartered in camp from the commencement to the close, and the presence of the Commander-in-Chief was productive of excellent results and a source of pleasure to all. His review of the brigade on Wednesday, June 13, was very successful and was witnessed by a large number of visitors, civic and military, from this and other States.

The weather, with the exception of showers the last day, was fine. The tents being wet when camp was broken were left standing, and Co. E, First Regiment, Capt. Bartlett N. Wilson, was detailed to remain and

guard the state property after the departure of the brigade. I desire to place upon record my appreciation of the thorough discipline of Captain Wilson's command, and of the highly satisfactory manner in which the officers and men performed the duties assigned them.

Brev. Brig. Gen. Richard H. Jackson, Major Fifth Artillery, U. S. A., was present during the encampment, having been detailed by the War Department to inspect the New Hampshire troops. His report, to which your attention is respectfully directed, is forwarded with this. General Jackson has twice before inspected the troops at encampments, and will be always a most welcome visitor, and while officers and men will rejoice at his well-earned promotion to Lieutenant-Colonel, Fourth Artillery, U. S. A., which occurred recently, they will also sincerely regret that the change of station consequent upon this promotion takes him so far away that his detail for the duty again at present cannot reasonably be hoped for.

The regular inspection was made as usual by Brig. Gen. Elbert Wheeler, Inspector-General, whose report in detail is respectfully submitted.

ARMORY INSPECTIONS.

The usual spring armory inspections were made in March, April, and May, by the Inspector-General, assisted by Major Frank W. Russell, Assistant Inspector-General, and Major Daniel B. Donovan, Inspector of Rifle Practice, of the Brigade Staff, and the standing of the several organizations, together with other valuable information, is given in General Wheeler's report.

RIFLE PRACTICE.

This important part of a soldier's training has not received proper attention during the year in all the regiments. The First Regiment, with the exception of Companies A, C, and D, has had little or no practice, owing to

a variety of causes, but chiefly because of a lack of suitable and accessible ranges. The Second and Third Regiments have been more fortunate and make a very fair showing, and a few of the Cavalry have qualified as third-class marksmen.

Pursuant to General Order No. 6, c. s., silver badges have been issued to such officers and men as have qualified as marksmen, and gold badges to those who have attained the proficiency required for sharpshooters, and it is proposed to allow requalifications in each of these two classes for two years, a bar of the same metal as the badge, with date, to be issued, to be attached to the badge. I feel confident that the issue of the badges and bars will do much to increase the interest in rifle practice, and will also, I think, tend to hold men in the service.

The report of the Inspector of Rifle Practice, Major D. B. Donovan, with list of sharpshooters and marksmen in each class, is appended to this report.

GENERAL REMARKS AND RECOMMENDATIONS.

The New Hampshire National Guard is now in many respects the equal of the troops of any State, and there has been constant improvement from year to year in discipline and drill; but in order that the present state of efficiency may not only be retained but a higher degree reached, there is need of a larger appropriation. The military establishment has simply outgrown the appropriation of ten years ago; not in an increase of numbers, but in striving to keep abreast of the times and, as far as possible, in line with modern and progressive ideas. I urgently recommend, therefore, that the annual appropriation be increased to thirty thousand dollars.

In the latter part of September last there was considerable uneasiness among the citizens of the northern part of the State, in the vicinity of West Stewartstown, regarding the movements of parties of Italian laborers who had been

engaged in the construction of a railroad just across the line in Canada, and who, having been defrauded of their pay by an absconding contractor, had destroyed some property, and, after having come in collision with the local Canadian militia, were drifting toward our border, and it was feared might, in their desperate state, commit some depredations upon the property of the citizens. Upon receipt of telegram from Hon. A. S. Batchellor, of Littleton, of the Executive Council, explaining the situation, the captains of Companies C, E, and H, Third Regiment, were directed to quietly have their commands well in hand, prepared to move at once in case they should be needed. Ball ammunition was supplied and blankets, etc., were ready to be issued, but fortunately the services of the military were not required. Each of the companies named responded at once, and so quietly was the matter managed that the general public was not aware that such precautionary orders had been given until the excitement in Coös county was entirely over. The officers and men were not only ready and willing to move promptly to the frontier, but were rather disappointed that they could not show to the people of the State that they were ready for "active service."

It was very gratifying to meet such a spirit in the troops, and confirmed the opinion I have long held that the New Hampshire National Guard would respond as cheerfully and promptly to any call upon it as did the militia organizations of Massachusetts, New York, and Pennsylvania in 1861.

Col. J. N. Patterson, of the Third Regiment, volunteered to go in command of the battalion, if necessary, which would have insured the services of an experienced and competent battalion commander.

The laws of the State, regarding the use of the military in aid of the civil authorities, are somewhat indefinite and obscure, and that they might have a legal interpre-

tation, and to give an authoritative reply to a question raised by Col. E. J. Copp, of the Second Regiment, the Judge-Advocate-General was directed to define the status and duties of officers and soldiers of the state troops in relation to the suppression of riots.

General Bellows furnished a clear and elaborate opinion, which was promulgated in general orders, and is again published with this report.

As stated in my report for 1888, the great need of many of the companies is proper armory accommodations. It is difficult to keep up for any length of time much enthusiasm, or even interest, when an armory is small, inconvenient, and not easily accessible ; but, on the other hand, give a military organization comfortable and convenient quarters and there will soon be found that *esprit de corps* without which a high degree of excellence can hardly be attained.

I beg here to quote from my report of last year the following: "The city of Manchester has four strong companies of infantry and a full battery, and while the latter has fair accommodations, though too small, the infantry companies are cramped, and their quarters entirely unfit for military purposes. There should be erected in Manchester a building suitably arranged for all the military organizations of the city. It should be erected and owned by the State, and should be so built that the arms, equipments, and ammunition could not be captured by a mob before the military could reach it ; it should be defensible by a few men against a mob, and the state property should be reasonably secure from damage by fire,—requirements which are not filled by any of the armories in that city."

I recommend that an appropriation be made by the Legislature for the construction of a state armory in the city of Manchester to accommodate all the organizations of the National Guard in that city.

The revision of the records of New Hampshire soldiers and sailors in the war of the Rebellion has progressed very satisfactorily, considering the many obstacles encountered, but the undertaking itself is of a most unsatisfactory nature, owing to numerous errors and contradictory statements in the official records of the office, necessitating, frequently, a voluminous correspondence and much research to verify a single individual record.

To complete the work and have it all correct, with the data required by law, a continuation of the appropriation is necessary. At my request the Governor appointed Hon. A. S. Batchellor and Hon. John C. Linehan, of the Council, as an advisory committee, that the progress of the work might be under their supervision, and I forward with this the report made by these gentlemen to the Governor and Council.

There should be some provision made for indigent soldiers of the Rebellion and for their widows and orphans. I am frequently in receipt of letters from town or county authorities in this and other States reporting that they have New Hampshire soldiers in their charge at almshouses or county farms, and asking if the State gives no assistance in such cases. The present law that soldiers unable to provide for themselves "shall be supported at the public expense in the town or city of their abode, at their own home, or such place, other than a town or county almshouse, as the selectmen or overseers of the poor may think right and proper," does not work satisfactorily to the soldiers or to the county officers, and it seems to me that the State should provide a Soldiers' Home.

The general government pays one half the cost of maintaining each inmate of state homes, undoubtedly the Grand Army of the Republic and the Woman's Relief Corps would do their full share, and the annual expense

to the State would be comparatively small. Certainly no soldier or sailor who represented the State in the war should be allowed to remain for a day an inmate of an almshouse, with the prospect before him of dying a pauper and receiving a pauper's burial. I recommend that provision be made for the establishment of a home for disabled New Hampshire soldiers and sailors who served during the war of the Rebellion.

I deem it my duty to once more call attention to the condition of the cases containing the flags of the war regiments, and to reiterate the statement that the flags are not properly protected, that they are so crowded together, the colors overlapping each other in many cases, that the regiment to which they belong cannot be determined.

I respectfully renew my recommendation of last year that new and suitable cases be provided, to be dust-proof, that more space be given the colors where needed, and that the lists of battles, which are in some instances wrong, be revised and corrected, and that the dates of the battles be added.

The Governor and Council have authorized me to procure, as far as possible, the photographs of officers of the war regiments to be placed in albums, and with some of the photographs received have come offers of donations of war relics. Doubtless many valuable and interesting relics could be obtained as gifts or loans to the State if there was a suitable place to display them. If the much-needed state library is ever built I trust a room may be set aside for a flag-room, into which may be gathered the tattered and faded battle-flags, together with such mementos and relics of camp and battle-field as can be collected, that they may be preserved for the benefit of future generations.

The centennial of the inauguration of George Washington as President of the United States was celebrated

in the city of New York April 29, 30, and May 1, and was attended by the Governor and Commander-in-Chief and Staff, the Honorable Council, the State Centennial Commissioners, the Secretary of State, State Treasurer, and other prominent citizens. In the military parade, April 30, the three regiments of infantry paraded as a brigade, about one thousand strong, under the command of Brig. Gen. D. M. White, and the Amoskeag Veterans, under command of Major E. F. Trow, with seventy men, were the special escort of the Governor. Much credit is due the officers and men who participated in the parade, as the trip to New York was entirely a private enterprise, there being no state appropriation from which the expenses, or any part of them, could be paid.

The following reports and papers are respectfully presented for your information and consideration :

Reports of Inspector-General (2).

Report of Brev. Brig. Gen. Richard H. Jackson, Major Fifth Artillery, U. S. A.

Opinion of Judge-Advocate-General in relation to the duties and status of troops engaged in the suppression of riots.

Report of Committee of Executive Council on the revision of the rolls of soldiers and sailors in the war of the Rebellion.

Report of Inspector of Rifle Practice, with list of marksmen and sharpshooters for 1888.

Return of the New Hampshire National Guard, showing location and strength of each organization.

Register of commissioned officers, May 31, 1888.

Resignations and discharges of commissioned officers during the year.

Commissions issued during the year.

Enlisted men dropped as deserters.

I have again to express my thanks for the courtesy with which I have ever been treated by Your Excellency and the Honorable Council and my appreciation of the same.

Very respectfully,

Your obedient servant,

AUGUSTUS D. AYLING,

Adjutant-General.

REPORTS OF INSPECTOR-GENERAL.

STATE OF NEW HAMPSHIRE,
INSPECTOR-GENERAL'S OFFICE,
NASHUA, August 31, 1888.

GEN. A. D. AYLING,
Adjutant-General, Concord, N. H. :

SIR, — In accordance with Section IV., General Orders No. 7, A. G. O., dated Concord, April 23, 1888, I have the honor to report as follows upon the recent encampment of First Brigade, New Hampshire National Guard :

The infantry organizations reached camp before twelve o'clock noon. The artillery, in obedience to special instructions, marched from Manchester, leaving there early in the morning, arriving in about six hours' time, in good order. The cavalry marched across country also, leaving Peterborough at two o'clock A. M., and arriving in camp at 10.30 P. M., having made the forty-five miles in fifteen hours' marching time. It was expected that they would bivouac over night *en route*, but Captain Smith, who was a veteran cavalryman, found his command in such good condition as night approached that it was deemed best to keep on. Every man was present, and, as was also the case in the battery, no horse or man was found to suffer materially from the experience. In both organizations the expressions were unanimously in commendation of the method pursued. The cavalry, not having been expected to arrive on the 9th, and having

sent no detail in advance to prepare their camp, found no tents pitched for them ; so, through the courtesy of the Adjutant-General, they were allowed to sleep that night in the Arsenal building. The members of the battery generously lent assistance to them, thus showing a highly commendable spirit.

The War Department was again represented by Gen. R. H. Jackson, Major Fifth United States Artillery, much to the pleasure of all.

My own arrival in camp was unexpectedly delayed until nearly 4 P. M., at which time the regular work had been taken up, guards were mounted, and drills were in progress.

One improvement in the daily routine was that requiring setting-up drill for fifteen minutes in every organization before breaking ranks from the reveille roll-call. Where this instruction was intelligently given, good results were manifest from it. Another noteworthy change was the shortening of the time between calls, with a view to having the two hours' drill in the forenoon end earlier, before the midday heat should become oppressive. Again, the calls for brigade dress-parade were so arranged as to provide time immediately following for regimental parade successively. The whole plan seemed to meet general approval, and was deemed a success.

Another innovation which was productive of good feeling, and was a pleasure also to all, was the entrance into camp of His Excellency the Governor and Commander-in-Chief on the first day, and his remaining there throughout the tour. This evidence of interest in the work of the brigade was heartily appreciated by both officers and men.

The weather was all that could be desired. Temperature medium, air bracing, no rain excepting light showers during one day, it was possible to use most of the

time to the highest advantage. The usual excellent record of health of the brigade was again made. Sanitary requirements of sinks, cook-houses, and general police were well observed; even better, if possible, than ever before.

The infantry having just been furnished with new uniforms, strictly of the army pattern, the appearance of the brigade in that respect was wonderfully improved, so that the State now has a force apparently uniformed for service. A considerable impetus in the direction of increased efficiency is already seen through the universal satisfaction at laying aside the swallow-tailed relics, much embellished (?), which have for years handicapped us, and seemingly connected us with the "antique and horrible." This change in dress may rightly be called another step in advance. One of the pleasing results from it was the appearance of the consolidated band, presenting a solid, uniform body of seventy-two members, without the motley look that variety of dress has heretofore given it. Numerous service-stripes were observed throughout the brigade, indicating a wide-spread love for the military profession.

The attendance was not generally creditable. There is a very serious defect somewhere in our system, which practically allows every man to be his own judge as to whether he shall attend encampments or not, though usually, I believe, under the spur of the heel of employers who selfishly and shortsightedly object. Remedy against them is doubtless difficult and perhaps impossible. I would suggest to captains that they refuse to enlist any man who does not agree in good faith to attend encampments and other state duty if nothing but business shall interfere. I find the reports of Massachusetts, Pennsylvania, New York, and other States show percentages far above ours, presumably without the employment of substitutes. This one difficulty in our State

is perhaps the most potent cause of discouragement among company and battalion commanders; it is surely deserving of very thoughtful attention. The strength and attendance were as follows:

TABLE OF STRENGTH AND ATTENDANCE.

ORGANIZATION.	Present.						Absent.			Aggregate.	Percentage of attendance.	Attendance, 1887.	Attendance, 1886.	
	Field and Staff.	Officers.		Enlisted men.				Officers.	Enlisted men.					
		Line.	Total.	Non-commissioned officers, musicians, and privates.	Band.	Total.	Total.							
Brigade officers...	8	....	8	5	....	5	2	....	2	15	90	100	100
First Infantry....	9	21	30	300	24	324	2	59	61	415	85	78	77	
Second Infantry..	9	22	31	228	23	251	1	108	109	391	73	70	71	
Third Infantry...	9	21	30	226	24	250	2	102	104	384	73	64	76	
First Battery.		4	4	68	....	68	....	....	....	72	100	87	96
Co. A, Cavalry.....		3	3	55	....	55	....	....	....	58	100	100	98
Totals.....	35	71	106	882	71	953	7	269	276	1,335	79	73	77	

A notable addition to the permanent improvements of the camp was the new cavalry stable, which proved exceedingly pleasing to that branch of the service. A further extension of the water system to brigade headquarters and other minor features indicated the wisdom of the general plan of our permanent camp-ground.

The discipline was most excellent. The spirit and purpose of the brigade were unmistakably towards cheerful performance of the duties prescribed and the observance of military courtesies. Special credit is due in respect to the latter. It was far superior to that observed in former years.

The Sunday in camp was well kept. Religious services were conducted by each of the three chaplains, while the Roman Catholics attended mass in Concord, by special arrangement. I believe the New England Sabbath was, on the whole, fully as well observed as is customary with the same individuals ordinarily. I am of the opinion, however, that in future it would be better, all things considered, to dispense with the conventional Sunday morning inspection, a proposition beginning to find many advocates in the regular service. The Sabbath cannot properly be called a day of rest, with so much of it devoted to this duty.

Guard duty in general was a great credit to the sentinels on post, as well as to the officers and the special instructor, Capt. A. N. Dow, A. D. C. I have never seen it so well understood in any New Hampshire camp. This is one of the fruits, doubtless, of the increased attention given it in armory instruction, also of the paragraph in General Orders No. 7, A. G. O., forbidding the enlistment of uninstructed and undrilled men during the six weeks preceding the encampment. If, however, a camp order was issued, requiring captains to arrange their guard rosters so that men who had had at least one tour of camp duty should be the first to go on guard, it would be a wise plan, and would still further improve the quality of sentinels. For a like reason, adjutants should be required to detail for officers of the guard only those who have had previous service in camp as commissioned officers. Officers and men alike should have the opportunity to observe the whole range of duties of their grades before being placed in such important positions.

Military signaling received faithful attention, as usual, under charge of the Acting Signal Officer, Captain A. N. Dow, A. D. C., the working detachment being a detail of

men belonging to Company D, First Infantry. They are well qualified for valuable service.

The hours for drill were faithfully used in skirmish, company, battalion, and brigade movements. Good instruction was generally given by officers in charge, and progress was plainly perceptible. Section 7, General Orders No. 4, c. s., from brigade headquarters, requiring the equalizing of companies previous to battalion drills, was not usually complied with, so that uniformity of movements in many cases was impossible. This is a tactical requirement also, and should be insisted upon.

Parades, brigade and regimental, were very creditable indeed. Battalion and brigade formations were made in quick time and good order, though occasionally flank companies, in their zeal to be prompt, were brought on to the line in advance even of the companies on which they were to dress, which, of course, was a positive error, easily corrected with a little observation and good judgment.

The review by His Excellency Governor Sawyer was very creditable. Alignments were good, ranks fairly well closed, and steadiness commendable. By special arrangement it was participated in also by the Cadets from the Nashua High School and from the High and Walker schools from Concord. They bore themselves exceedingly well alongside their older comrades.

After the review one of those maneuvers known since remote ages, and properly denominated as "sham fights," was presented. Much ammunition was used, and it was doubtless interesting to many; but its real value as a means of educating the troops, in my opinion, is inexpressibly small. If fixed ammunition of the same value could have been used under proper direction in target practice, it would have been of much greater utility. This branch of instruction was entirely neglected, princi-

pally through the absence of the Inspector of Rifle Practice.

No formal inspection of camp or troops was made by me, but I witnessed the Sunday morning inspections by battalion commanders, also of the artillery and cavalry. There was the usual attention given to all details in some organizations, and lack of it in others. My command of the English language seems inadequate to impress upon many captains the proper idea of what is expected in this direction. If I could be granted the privilege of gathering such officers into a squad for an object-lesson in army methods of preparing for this ceremony, I believe a perceptible growth in knowledge and improvement in appearance would be speedily attained. If not, I would repeat the lesson with the addition of some of the army persuasives.

The artillery did its usual good service with exceeding great credit to itself. Drills were spirited and in good form, guard duty was well understood, its ranks are full, and every man was present for duty. It is a model organization.

The cavalry has also the maximum strength. Every man showed his interest by being present, and good results were shown. Special effort is required to bring this branch of the service to the army standard, through the extra work of teaching the horses. Allowance must always be made for this fact in judging of their efficiency.

The three bands did their usual excellent work, and, barring the criticisms upon condition of instruments, frequently necessary upon one or two of them, they are a constant satisfaction to the service. Music rendered at evening concerts was of a high order and specially attractive.

Owing to dampness on the last day, tents were left standing. The infantry left camp at two o'clock, march-

ing to the railroad station under charge of the brigade commander. The tents and grounds were left in charge of Company E, First Infantry, Captain B. N. Wilson. The artillery and cavalry left earlier in the day to march back to Manchester and Peterborough respectively.

To sum up briefly, it belongs to the brigade to say that the week's duty was by far the most satisfactory that has ever been done. Credit is universally due. Every one seemed desirous above all things to do his best, both in drill and discipline, and improvement consequent, and satisfaction resulting, were manifest to all. I returned from the encampment with the feeling that such results are good reward to the State, and to all who have contributed of their labors in bringing them about, for the expenditures made. Certainly the encampment of 1888 must be regarded as an unqualified success.

My acknowledgments are due to all for courtesies extended and for kindly reception of suggestions made.

Very respectfully,

Your obedient servant,

ELBERT WHEELER,

Inspector-General.

STATE OF NEW HAMPSHIRE,
INSPECTOR-GENERAL'S OFFICE,
NASHUA, May 15, 1889.

GEN. A. D. AYLING,

Adjutant-General, Concord, N. H. :

SIR,—In compliance with General Orders No. 1, c. s., from your office, I have the honor to make the following report of the annual armory inspections of the New Hampshire National Guard, just completed :

In compliance with your orders, Major Frank W. Russell, Assistant Inspector-General, reported promptly by letter for instructions, but through imperative business engagements and illness in his family was unable to make any inspections except of the company at Plymouth. This necessitated my applying for assistance elsewhere to some extent, in response to which Major Daniel B. Donovan, Inspector of Rifle Practice, made the inspections at Peterborough, Pittsfield, Bristol, and Wolfeborough, and Col. E. J. Copp, commanding Second Regiment, inspected the battalion at Keene. With these exceptions I personally made the required tour. My acknowledgments are due for the assistance rendered in these instances.

There have been no disbandments of companies since the inspection of 1888. The company at Newport, which was in process of reorganization a year ago, was inspected for the first time upon this tour, and with results which prove the wisdom of the reorganization in a marked manner. Company F, Third Regiment, which had just been formed but was not prepared for inspection at the last report, underwent its first inspection on this tour, and with results hardly satisfactory, as indicated by the table of comparative standing and more minute report contained in the inspection book sent herewith. Marked improvement must at once appear in this organization to entitle it to continued support.

The band of the First Regiment has recently been discharged, with a view to early reorganization.

The numerical strength of the brigade at date of inspection is given in the following table, which also shows the percentage of attendance :

TABLE OF STRENGTH AND ATTENDANCE.

STRENGTH.	1889.			1888.		
	Officers.	Men.	Aggregate.	Officers.	Men.	Aggregate.
Brigade commander and staff.....	8	4	12	10	4	14
Artillery.....	4	68	72	4	76	80
Cavalry.....	3	55	58	3	54	57
Infantry.....	97	1,013	1,110	87	945	1,032
Total force at date of inspection.....	112	1,140	1,252	104	1,079	1,183

PERCENTAGE OF ATTENDANCE.	1889.			1888.		
	Officers.	Men.	Aggregate.	Officers.	Men.	Aggregate.
Brigade commander and staff.....	100	100	100	100	75	93
Artillery.....	100	97	97	100	86	86
Cavalry.....	100	91	91	100	94	95
First Regiment Infantry.....	94	92	92	93	92	92
Second Regiment Infantry.....	97	96	96	100	94	95
Third Regiment Infantry.....	100	84	85	97	93	93
Aggregate percentage.....	96	90	91	97	92	93

It will appear from this that there has been a slight increase in aggregate strength during the year. The percentage of attendance has somewhat fallen off, but not particularly, except in the Third Regiment. The table

of comparative standing will indicate the organizations which are entitled to special credit for attendance, and will also indicate those in which there is need of giving more attention to this matter.

The percentage of new enlistments and discharges varies but little from the rule heretofore, approximating about forty per cent during the year. I am pleased to note a continual improvement in the quality of the material which is enlisted generally, and a more universal purpose throughout the several organizations of the brigade to so qualify for the performance of duties as to meet the military demands laid upon them.

The table of comparative standing transmitted herewith has been made up in the same manner as in 1888, from which will appear in detail the points of merit and weakness of each organization. It may be worth while to call the attention of company commanders to the value of obtaining full attendance at encampments and company drills, contributing, as they do, somewhat materially to the number of credits. My report of a year ago indicates the credits given for the various percentages.

More attention was given this year than heretofore to determining the knowledge of non-commissioned officers and their ability to instruct squads of men, as well as to perform their duties as non-commissioned officers of the guard. As a rule it may properly be said that captains have not required their non-commissioned officers to qualify for the performance of these duties, though there are some pleasing exceptions. It should certainly be within the power of every corporal and sergeant to instruct a squad of recruits in an intelligent manner; and it should be a universal rule that captains place in the ranks no recruits or men who are not thoroughly instructed in the School of the Soldier and the Manual of Arms. In many companies non-commissioned officers

who were called upon to drill their squads in the Manual "by the numbers," evidently thought that this exercise was simply intended to teach the cadence, and this impression of course must be directly chargeable to the company commanders. Indeed, it may generally be said that the ignorance of non-commissioned officers or privates is primarily chargeable to captains, although, as copies of the Tactics have been issued in sufficient numbers to make it possible for every officer and non-commissioned officer in the brigade to have free access to them, there is little excuse on the part of any of them for the ignorance displayed; but the refreshing instances frequently found of sergeants and corporals who took sufficient pride in the matter to qualify for the performance of their duties, indicates that the captains are not entirely responsible in the matter. A majority of the companies demonstrated a fair degree of familiarity with the "setting-up" exercises, but this was not universal.

Knowledge of guard duty has perceptibly improved in general during the year, especially on the part of privates. It is apparent that too little attention is given to instructing non-commissioned officers as to their particular duties in the posting of reliefs, rendering of courtesies, etc.

The condition of property is generally remarkably good. This applies without qualification to the new uniforms furnished last year. Every organization is credited with excellent condition of arms, with the exception of four, which are marked as "good," and in none of these is there occasion for severe criticism. Equipments were generally found in good condition, except as they have become more or less unserviceable through ordinary wear and tear. In some instances proper attention had not been given to cleaning of belt-plates and other small details, but this was the exception. It is to be hoped that new belts may be provided for the entire brigade without

delay, those now in use being in most cases not in keeping with the rest of the outfit.

The matter of armories in some cases is one demanding special attention. Company B, First Regiment, Manchester, Company C, Second Regiment, Nashua, and Company C, Third Regiment, Concord, are without suitable accommodations, and have been for a considerable length of time, finding it impossible to lease or obtain the use of suitable rooms for drill purposes. The allowance by the State of \$100 per year for armory rent will not in any of the larger places pay the necessary expense for a hall suitable for the purpose, and in numerous instances companies are obliged to pay from two to four times that amount annually, making up the extra sum in such manner as is possible. This is not just to these organizations, who so faithfully and perseveringly devote their time to qualifying for the duties imposed upon them by the State. I would respectfully recommend that the allowance for armory rent be increased, and for this purpose suggest that the militia law be so changed as to require the cities and towns in which military companies are located to provide suitable armories for them, properly lighted and heated, and provided with suitable accommodations for the care of state property; in return for which the State shall reimburse the several cities and towns in question by an allowance sufficient to pay the expenses thereof, within reasonable limits. The laws of the State of Massachusetts upon this matter are deemed worthy of consideration by our Legislature, in the main, and I would recommend their use as a model in shaping new legislation upon this matter.

This burden of inadequate compensation for armory rent, which is imposed upon nearly all companies in the State, is relieved in several instances by an annual appropriation by city or town authorities, as follows: \$100 is

paid to each company, the regimental band, and headquarters in Manchester, Dover, and Farmington. In Nashua the city government this year has appropriated \$200 to each organization in the city, and in New London the town has given the use of the town hall, free of charge, for drill purposes. With these exceptions, all expense above the state allowance for rent is borne by each organization.

Rifle practice has gone on in a somewhat irregular manner during the year, from various causes. The results obtained, as indicated by the table of comparative standing, are generally quite unsatisfactory. In some cases this is due to the difficulty of obtaining proper field ranges for practice, and in some instances companies are forbidden by the owners of the buildings in which armories are situated, the privilege of armory practice, — another argument for revising the law relative to providing armories.

Special commendation is due to Company G, Second Regiment, Keene, and Company G, Third Regiment, Lebanon, for the progress made in this department; the former having, in addition to the numerous qualifications in each of the three classes, six marksmen and four sharpshooters, and the latter five marksmen and five sharpshooters. This branch of instruction was specially examined during this tour by Major D. B. Donovan, Inspector of Rifle Practice, who devoted his time to instructing the several organizations as to the provision made by the State for its encouragement, as a result of which it is hoped that practice in this direction may be taken up without delay in a systematic and intelligent manner.

It seems imperative hereafter to issue ammunition in some form for armory practice. The percentage of newly enlisted members being so large, there is constant need of this elementary form of instruction previous to taking

up the more advanced work upon the range. Under the system of marking which has been prescribed, the regular instruction at the armory range is one of the primary qualifications entitling companies to rating under this head.

In inspecting the drill of companies cards were used, as heretofore, in most cases, although where space was sufficient platoon movements were called for in some instances, usually with fair results. It is noticeable that by this card system continued improvement is the rule, only two officers in the entire brigade being marked as "poor" in their method of handling their companies. Special credit is due for freedom from criticism to the following, viz.: Capt. D. F. Shea, Co. B; 1st Lieut. Frank W. Tebbetts, Co. E; Capt. P. H. O'Malley and 1st Lieut. T. H. Kendrigan, Co. K; — all of the First Regiment. Capt. Ira Stowell, Co. D; Capt. C. H. Pitman and both lieutenants, Co. F; Capt. F. O. Nims and both lieutenants, Co. G; Capt. J. P. Wellman and both lieutenants, Co. H; 1st Lieut. W. H. Goodspeed, Co. I; 1st Lieut. John W. Crane, Co. K; — all of the Second Regiment. Capt. Geo. H. Colby, Co. E; Capt. Geo. N. Cheever, Co. H; — both of the Third Regiment.

The captains of some companies are to be criticised for not properly instructing their guides as to their duties and positions in company movements; and these guides are, of course, equally responsible for not having qualified themselves through study of the tactics. More attention is needed in several companies to keeping proper distances in column of fours, to correcting the position of pieces in the manual of arms, and there is too often necessity of correcting men in the position of the soldier at "Attention," and in a few instances to preserve more steadiness in the ranks.

Ceremony of inspection generally received credit for excellence, but with more exceptions than seem necessary in so simple a ceremony.

I am pleased to commend the first sergeants of Com-

panies A and E, First Regiment, C, D, E, and I, Second Regiment, and E and K of the Third Regiment, for the interest in their duties which has caused the calling of the roll from memory to be familiar to them.

There is one tendency somewhat prevalent on the part of officers which has no excuse for longer existence. I refer to the custom observed, even in some of the best companies, of so maneuvering that the original formation of companies shall be preserved, avoiding such a method of executing the movements as shall disarrange the relative positions of fours and guides, which seemingly might lead to confusion. This was strikingly noted in two companies, which, brought into single rank by the requirements of the card in such a way that the original right of the company became the left in wheeling about by fours, and company movements in the manual being called for, which included "Stack arms," it was deemed necessary by the officers in command to wheel their companies about by fours, so as to have the original right upon the the right, before the movement could be executed without confusion, — a very ridiculous idea, certainly, and one which, with any other of like nature, should be at once eliminated. Captains should make a practice of drilling as much left in front as right in front, so that this idea may be thoroughly dispelled. The manual of many companies was shown to be faulty in executing what may be termed the more uncommon movements, such as "Reverse," "Secure," and "Rest on arms," also stacking in single and double rank. I have already taken occasion to recommend captains to make it a practice at each drill to put their companies through the entire manual, so that there shall not be a single movement which shall be unfamiliar, and I would emphasize this matter for their future consideration.

Prize drills were observed in Companies C and E, Third Regiment, the successful competitors being respectively Private John T. McClintock and Corporal

Frank E. Smith, to whom were awarded the company badges as the best-drilled men in the manual of arms.

It is always a pleasure to note the excellent condition of First Battery, Capt. S. S. Piper, which was found as usual. The State is to be congratulated upon such excellence as universally obtains in this command.

Company A, Cavalry, was inspected by Maj. D. B. Donovan, and is reported by him to be in its usual good condition.

The bands of the Second and Third Regiments are apparently in even better condition than ever before.

The Signal Detachment attached to Company D, First Regiment, was inspected at Dover, reporting under charge of Capt. A. N. Dow, A. D. C.

The medical inspections of recruits were made in the First and Third Regiments (excepting in Companies C and F of the former and Companies A, D, F, and K of the latter), also the Artillery and Cavalry; in the Second Regiment no order was issued therefor.

Regimental commanders in most instances accompanied the inspector; Colonel Patterson, of the Third Regiment, keeping up his unbroken record of attendance upon every inspection, as in years past.

The tour of inspection was completed with the feeling that a good degree of progress is continually being made, and that too much credit cannot be given for the purpose displayed throughout the brigade to merit the confidence of the State for the efficiency which is in general the prime motive of organizations. The brigade, in my opinion, certainly deserves better financial support than is now being given by the State, and I am sure that an increase of the annual appropriation would contribute in a marked manner to still further improvement, and I hope it may be possible to convince the Legislature about to assemble of the truth of this.

Very respectfully,

Your obedient servant,

ELBERT WHEELER,

Inspector-General.

TABULATED REPORT OF INSPECTIONS AND

ORGANIZATION.	Location.	Date of Inspection.	Present and Absent.		Present at Inspect'n		Absent from Inspect'n		Percentage of Attendance.			Records.	Target Practice.
			Officers.	Men.	Officers.	Men.	Officers.	Men.	Inspect'n.	Encampment.	Drill.		
BRIGADE Field and staff	Peterboro'	Apr. 26	8	4	8	4	....	....	100	90	....	excel't	.....
FIRST REGIMENT. Field, staff, and non-commis'd staff	Manchester.	Mar. 20	9	5	8	5	1	....	93	100	....	excel't	poor...
Band.....	A												
Company A.....	Dover	Mar. 19	3	40	3	40	....	....	100	73	60	excel't	poor...
" B.....	Manchester.	Mar. 26	3	50	3	50	....	....	100	71	B	excel't	poor...
" C.....	Goffstown...	Mar. 22	3	33	3	24	...	9	75	82	35	good ..	poor...
" D.....	Dover.....	Mar. 19	3	42	3	39	...	3	93	97	25	excel't	poor...
" E.....	Manchester.	Mar. 26	3	46	3	44	....	2	96	92	84	good ..	poor...
" F.....	Derry.....	Mar. 20	3	40	1	32	2	8	77	72	50	good ..	poor...
" H.....	Manchester.	Mar. 20	3	37	3	31	....	6	85	85	50	fair....	poor...
" K.....	Manchester.	Mar. 27	3	48	3	48	....		100	94	80	good ..	poor...
SECOND REGIMENT. Field, staff, and non-commis'd staff	Nashua.....	Apr. 10	9	5	8	5	1	....	93	100	....	excel't	poor...
Band.....	Nashua.....	Apr. 10	....	21	....	21	....	....	100	100	....	
Company C.....	Nashua.....	Apr. 10	3	29	3	29	....	....	100	58	B	good ..	poor...
" D.....	Newport...	Apr. 16	3	41	3	41	....	....	100	57	50	excel't	poor...
" E.....	Rochester...	Apr. 12	3	34	3	30	....	4	89	71	75	good ..	good ..
" F.....	Farmington	Apr. 11	3	37	3	34	....	3	92	62	60	fair....	excel't
" G.....	Keene.....	Apr. 4	3	48	3	48	....	....	100	82	80	excel't	excel't
" H.....	Keene.....	Apr. 4	3	38	3	38	....	....	100	87	80	excel't	excel't
" I.....	Nashua.....	Apr. 10	3	45	3	45	....	....	100	63	58	good ..	poor...
" K.....	Hillsboro'..	Apr. 15	3	34	3	28	....	6	84	72	70	excel't	poor...
THIRD REGIMENT. Field, staff, and non-commis'd staff	Concord	Apr. 26	9	3	9	3	....	....	100	98	...	excel't	good ..
Band.....	Concord	Apr. 26	....	23	....	23	....	....	100	100	...		
Company A.....	New London	Apr. 25	3	44	3	38	....	6	88	61	43	good ..	poor...
" C.....	Concord	Apr. 26	2	42	2	39	....	3	91	84	49	excel't	good ..
" D.....	Pittsfield ..	May 10	3	39	3	29	....	10	76	63	60	fair....	good ..
" E.....	Plymouth...	May 8	3	31	3	24	...	7	79	73	40	excel't	good ..
" F.....	Bristol.....	May 7	3	39	3	25	....	14	67	71	40	poor...	poor...
" G.....	Lebanon....	Apr. 24	3	39	3	29	....	10	76	62	29	excel't	good ..
" H.....	Franklin....	Apr. 25	3	44	3	42	....	2	96	75	67	excel't	good ..
" K.....	Wolfeboro'..	May 9	2	36	2	32	....	4	89	69	30	excel't	good ..
FIRST BATTERY.....	Manchester.	Mar. 20	4	68	4	66	....	2	97	100	51	excel't	poor...
CAVALRY, Co. A.....	Peterboro'..	Apr. 3	3	55	3	50	....	5	91	100	75	excel't	fair....

A — Discharged.

B — Have no drill-room.

COMPARATIVE STANDING OF ORGANIZATIONS.

Uniforms.	Arms.	Equipments.	Military Bear- ing.	Guard Duty.	KNOWLEDGE OF DUTIES.									Credits, 1882.	Credits, 1888.	Credits, 1887.	
					INSPECTION.			DRILL.									
					Officers.	Men.	Card	Cap- tain.	Card.	First Lieut.	Card.	Second Lieut.	Officers' Average.	Men.			
excel't	excel't	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39	39	22	
excel't	excel't	excel't	excel't	.....	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	48	47	22	
excel't	excel't	excel't	excel't	good ..	excel't	excel't	0	excell't	3	excel't	5	excell't	excel't	excel't	63	62	45
excel't	excel't	fair....	excel't	good ..	excel't	excel't	7	excell't	2	fair....	4	excell't	good ..	excel't	54	59	45
excel't	excel't	good ..	good ..	good ..	excel't	good ..	7	good ..	5	good ..	3	good ..	good ..	fair....	51	55	34
excel't	excel't	good ..	excel't	good ..	good ..	good ..	1	good ..	4	excel't	3	fair....	good ..	good ..	55	45	..
excel't	excel't	excel't	excel't	good ..	excel't	excel't	0	good ..	6	excel't	1	good ..	good ..	excel't	64	65	42
excel't	good ..	good ..	good ..	fair....	excel't	good ..	2	good ..	absent..	absent..	absent..	good ..	good ..	good ..	51	41	28
excel't	excel't	good ..	excel't	good ..	excel't	excel't	0	excell't	8	excel't	1	good ..	excel't	excel't	58	60	..
excel't	excel't	excel't	excel't	excel't	excel't	excel't	7	excell't	8	excel't	6	excell't	excel't	excel't	67	64	44
excel't	excel't	excel't	excel't	.....	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	.....	48	49	22
excel't	excel't	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36	36	22
excel't	excel't	good ..	excel't	good ..	excel't	excel't	5	excell't	3	excel't	6	fair....	good ..	good ..	51	57	..
excel't	excel't	excel't	excel't	good ..	excel't	good ..	6	excell't	5	good ..	4	fair....	good ..	good ..	57	...	..
excel't	excel't	excel't	excel't	good ..	excel't	good ..	8	good ..	4	good ..	1	good ..	good ..	good ..	60	62	41
excel't	excel't	good ..	good ..	good ..	excel't	good ..	4	excell't	6	excel't	7	excell't	excel't	good ..	58	61	40
excel't	excel't	excel't	excel't	excel't	excel't	excel't	0	excell't	4	excel't	2	excell't	excel't	excel't	70	65	45
excel't	excel't	excel't	excel't	excel't	excel't	excel't	0	excell't	1	excel't	4	excell't	excel't	excel't	70	64	45
excel't	excel't	excel't	excel't	good ..	excel't	excel't	0	excell't	0	excel't	2	excell't	excel't	excel't	60	63	43
excel't	excel't	excel't	excel't	good ..	excel't	excel't	2	excell't	7	excel't	6	excell't	excel't	good ..	61	58	40
excel't	excel't	excel't	excel't	.....	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	.....	50	50	20
excel't	excel't	excel't	excel't	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36	36	21
excel't	good ..	good ..	excel't	fair....	excel't	good ..	2	good ..	8	good ..	5	excell't	good ..	good ..	51	49	32
excel't	good ..	excel't	excel't	good ..	excel't	excel't	6	excell't	3	excel't	vac'ney	excel't	good ..	good ..	61	58	39
excel't	excel't	good ..	good ..	good ..	good ..	good ..	1	good ..	4	good ..	5	good ..	good ..	fair....	52	51	42
excel't	excel't	excel't	excel't	fair....	excel't	excel't	7	excell't	3	excel't	4	excell't	excel't	fair....	57	56	40
excel't	good ..	good ..	good ..	poor..	fair....	fair....	3	poor..	4	fair....	2	fair....	fair....	fair....	41	...	..
excel't	excel't	excel't	good ..	fair....	excel't	excel't	4	good ..	2	good ..	6	good ..	good ..	good ..	53	58	40
excel't	excel't	good ..	excel't	fair....	excel't	good ..	3	excell't	8	poor..	2	good ..	good ..	good ..	59	61	41
excel't	excel't	good ..	excel't	good ..	good ..	good ..	vac'ney	5	good ..	8	good ..	good ..	good ..	fair....	53	59	38
excel't	excel't	excel't	excel't	good ..	excel't	excel't	.....	.....	.....	.....	.....	.....	excel't	excel't	64	63	45
excel't	excel't	excel't	excel't	C	excel't	excel't	.....	.....	.....	.....	.....	.....	excel't	good ..	63	55	42

C—Not examined, owing to lack of time.

REPORT OF BVT. BRIG. GEN. R. H. JACKSON.

FORT SCHUYLER, N. Y. H.
JUNE 20, 1888.

TO THE ADJUTANT-GENERAL,
U. S. Army, Washington, D. C.:

GENERAL,—In obedience to paragraph 7, Special Orders No. 119, c. s., from the Headquarters of the Army, and letter of instructions from your office dated May 24, 1888, I have the honor to make the following report of my observation of the New Hampshire National Guard at the state camp at Concord, N. H., during the seven days' encampment, commencing June 9 and ending June 15, 1888.

The troops composing the First Brigade, New Hampshire National Guard, arrived in camp on the 9th, and at once proceeded to duty, as required by General Orders No. 4 from brigade headquarters, guard mounting, drill, dress parade, etc., taking place in succession. The camp had been prepared by details from the several commands, working under the direction of the brigade quartermaster, Captain Louis C. Merrill.

ORGANIZATION.

The brigade consists of the First, Second, and Third Regiments of Infantry; Troop A, Cavalry; and the First Light Battery, New Hampshire National Guard.

The following table shows the average strength of the command for the seven days:

TROOPS.	Companies.	Present.		Absent.		Total present and absent.	
		Officers.	Men.	Officers.	Men.	Officers.	Men.
Brigadier-general and staff.	9	5	1	.....	10	5	
First Regiment of Infantry.	8	30	324	2	59	32	383
Second Regiment of Infantry	8	32	252	1	105	33	357
Third Regiment of Infantry.	8	30	250	2	102	32	352
Troop A, Cavalry.	1	3	55	.....	3	55	
First Light Battery	1	4	68	.....	4	68	
Total	26	108	954	6	266	114	1,220

The attendance of the First Regiment during the encampment was 85.30 per cent; of the Second Regiment, 72.82 per cent; and of the Third Regiment, 72.91 per cent. Troop A, Cavalry, and the Light Battery had every officer and enlisted man present.

CLOTHING.

The New Hampshire troops have been supplied with new clothing since the camping season of last year. The uniform coat and trousers are of the army texture and pattern. The officers, non-commissioned officers, and privates are now well provided with suitable clothing for all kinds of service.

ARMS AND EQUIPMENTS.

The infantry is armed with the Springfield rifle, caliber .45, the old cartridge-box, and the steel bayonet scabbard. The troop of cavalry is armed with the saber, and the battery of artillery with four light 12-pounders. The

arms were all clean and in good condition for service. The old knapsack, which is not of much service, is used by the infantry. The tents, with the exception of a few at brigade headquarters, were the same that were in use last year; they are kept in excellent condition.

THE STAFF DEPARTMENTS.

Major-General A. D. Ayling, the Adjutant-General of the State, has charge of all the funds and property appertaining to the National Guard. He attends personally to all issues of arms, equipments, clothing, ammunition, tents, and camp equipage. The storage and care of all this public property is supervised by him, and the state arsenal and storehouse on the camp-ground is kept in excellent condition. The issues of public property are made by General Ayling to the brigade and regimental quartermasters upon proper receipts, and at the close of the camping season the property is returned to the arsenal, and the receipts canceled. General Ayling is, therefore, practically, quartermaster-general, commissary-general, chief of ordnance, and paymaster-general.

INSPECTOR-GENERAL'S DEPARTMENT.

Brig. Gen. Elbert Wheeler, the Inspector-General of the State, was present during the encampment, and inspected the whole command. He was constantly engaged in the instruction of the officers in their duties, and the guards and sentinels received his unremitting attention. Major F. W. Russell, the brigade inspector, was in camp for three or four days, and assisted General Wheeler in the instruction of the various organizations.

MEDICAL DEPARTMENT.

Lieut. Col. George Cook, the medical director of the brigade, had charge of the field hospital, the surgeons

and assistant surgeons of the regiments making daily reports to him. The medical department was well organized, careful preparations having been made for the proper treatment of the sick. The supply of medicines, etc., was ample. The morning reports, however, showed that there was no sickness in the command, and I believe there was only one man for a short time in the hospital during the seven days of camp. Colonel Cook made several daily inspections of the camp, the sinks, kitchens, tents, company streets, and grounds receiving his constant attention. The police of the camp was very good indeed, and to Colonel Cook's care and vigilance this was in great part due.

The system followed by the staff departments is good, and very well adapted for placing the force in immediate condition for active service.

The troops were supplied with rations by hired caterers. The food was good and substantial, and well prepared.

TARGET PRACTICE.

There was no target practice during the encampment.

INSTRUCTION.

There were three drills daily, which, with guard mounting and dress parade, kept the troops busily employed from reveille until retreat. The good result of this constant and systematic instruction was clearly apparent before the close of the encampment. When the troops arrived in camp, it could easily be seen that there were a number of recruits in the ranks. A few of these men in a company detract from its steadiness and military appearance. In consequence of this the guard mountings and dress parades on the first, second, and third days were not very good, but it was astonishing to observe how rapidly they advanced in steadiness, and

how well and easily the ranks were dressed during the last days of the season.

I was very much pleased to see that more than one half of the drills were devoted to skirmishing. These skirmish drills, were, as a rule, very well conducted. I noticed that at company skirmish drills the colonels of regiments were present on the ground superintending the work and instructing the company officers and file-closers. The only fault to be found was that in some of the companies the men were permitted to talk to each other. The companies had evidently not been fully taught that while at drill, standing at "Attention," or "Parade rest," there should be absolute silence in the ranks; otherwise, the commands of the officers and the instruction sought to be given will be unheeded by the men.

DISCIPLINE.

As usual with the New Hampshire troops, the discipline was very good. The prison room at the guard-house was empty. The men were orderly and obedient, and there was no drinking of whisky or beer. Absolute quiet prevailed in camp between taps and reveille. Military courtesy was well observed. Police duty was well attended to, the result being a remarkably clean camp.

Owing to the number of recruits in the ranks, guard duty was not at first so well performed as it should have been. Some of the officers, sergeants, and corporals had never been on guard before. "Slouchy" sentinels and uninstructed non-commissioned officers were occasionally to be seen. The majority of the men on guard, however, particularly on the last days, were attentive to their duties and gave evidence of the careful instruction they had received.

GENERAL REMARKS.

The military appearance of the regiments of infantry was very good, a great improvement over last year being

quite manifest. A very great improvement from day to day was visible. The officers and men worked with a will, and everything was running quite smoothly on the last day. The stated roll-calls were well attended, and all the formations were conducted in a strictly military manner.

Company A, Cavalry, was in excellent shape, well mounted, well drilled, and well equipped. This company marched forty-five miles, from Peterborough to Concord, in about twenty-one hours, and arrived at the camp at 10 P. M., on the 9th. This long march was so well conducted by Captain Smith that neither horses nor men suffered in the least, and the company was on drill the next morning looking none the worse for the long and fatiguing march. The company left camp on the evening of the 14th, on its return march to Peterborough.

The Light Battery, commanded by Capt. S. S. Piper, was, I think, in even better condition this year than when I made my report of last year. In discipline, drill, application, and energy it is a first-class organization. I was astonished to find that such excellent teams of artillery horses could be found, and still more astonished to see that the drivers were skillful in the handling of the teams, and that they never mistook the trumpet signals. This organization also marched to camp from Manchester, a distance of about eighteen miles. There were no sore shoulders or sore backs among the artillery or cavalry horses.

A new and commodious stable has been recently erected upon the camp-ground. It has stalls for sixty or seventy horses.

Colonels G. M. L. Lane, E. J. Copp, and J. N. Patterson command the First, Second, and Third Regiments, respectively. They have good field and staff officers, and their regiments reflect credit upon them.

The Governor of the State was present, with the

exception of one day, during the encampment. His staff officers were also present. He was constantly to be seen riding about witnessing the drills and evolutions. He reviewed the brigade, and was present at all the dress parades. He was, I think, deeply interested, and seemed to be well pleased with the soldierly bearing and conduct of the troops. I have no doubt that the officers and men were encouraged by his presence, and were glad of the interest taken in their exercises by the Commander-in-Chief.

Brig. Gen. Daniel M. White commanded the camp of instruction. He was assisted by the same staff officers he had last year. It is a most excellent staff, every officer belonging to it having a thorough knowledge of his duties.

I am very much pleased to be able to report that such good progress was made by the troops during the encampment. New Hampshire should be proud of its troops. I know the Governor is.

In conclusion, I take great pleasure in tendering my sincere thanks to Governor Sawyer and Staff and General White and Staff for the courtesy and kindness extended to me during my official visit to the state camp.

I am, General, very respectfully,
Your obedient servant,

R. H. JACKSON,
Major Fifth Artillery, Bvt. Brig. Gen. U. S. Army.

OPINION OF JUDGE-ADVOCATE-GENERAL.

STATE OF NEW HAMPSHIRE,
JUDGE-ADVOCATE-GENERAL'S OFFICE,
CONCORD, June 1, 1888.

SIR, — I am in receipt of yours of the 17th ult., transmitting Col. E. J. Copp's letter of the 15th ult., and directing me to answer in writing the question raised by Colonel Copp as to whether he, if in command of troops assisting in the suppression of a riot, could in his discretion give the command "fire," or whether such order must come from "the civil officers engaged in suppressing such riot," and also requesting me to define as clearly as possible the status and duties of the officers and soldiers of the state troops in relation to the suppression of riots. In compliance with these instructions I herewith submit my views for your consideration.

Our State has been so free from mobs, riots, and civil convulsions during its political life, that the questions raised have never been brought before our courts, and so my reply must be in the main simply my own construction of our scanty and not very clearly worded statutes bearing on these matters, unaided by the judicial interpretation of our bench.

In some States, notably in Massachusetts, the various questions involved in the employment of the military to aid the civil authorities in the suppression of riots have been the subject of most careful and painstaking legislation, and it is to be hoped that our Legislature will soon

follow the commendable example of our neighboring State, and by precise legislation clearly settle the doubts that must constantly arise in endeavoring to give a coherent construction to our somewhat dimly worded statute law.

General Laws, chapter 96, section 1, authorizes the use of the active militia for "preventing or suppressing invasion, insurrection, or riot, or for aiding the civil officers in the execution of the law," and chapter 257 provides how in case of riot the state troops are to be called out, and to some extent prescribes their duties.

The portions of said chapter 257 material to our inquiry are as follows :

SECTION 1. When twelve or more persons, any of them armed with clubs or dangerous weapons, or thirty or more, armed or not, are anywhere unlawfully, riotously, or tumultuously assembled, every mayor, alderman, selectman, justice, constable, city marshal, police officer, sheriff, or deputy sheriff having authority to act in that place, shall go among the persons so assembled, or as near to them as they can safely go, and in the name of the State command all persons there assembled to separate from the mob, and place themselves under the orders of the peace officers and in the places directed by them, or depart immediately and peaceably to their homes.

SECT. 2. The said officers, and each of them, shall exert themselves to suppress such riot, and to arrest and secure all persons who have taken any part therein, or who shall refuse to obey their orders. They may command any person to assist in arresting and securing such rioters, and shall forthwith organize and arm, with such weapons as can be obtained, such citizens as shall place themselves under their order, as the power of the county, and resist, repel, and suppress such riotous assembly.

SECT. 3. Whenever, in the opinion of the Governor, judge of any court of record, sheriff, mayor, or any three selectmen, aldermen, justices, or other officers before named, there shall be occasion, they may order any military company to appear with their arms, or may organize companies of volunteers, to assist in suppressing such

riot, who shall forthwith assemble, and shall be under the orders of the civil officers engaged in suppressing such riot.

SECT. 4. If in the effort made to suppress such assembly, and to arrest and secure the persons composing it, though the number be less than twelve, any such person or any other person is killed or wounded, or any injury is done to persons or property, said magistrates, officers, and persons acting under them, shall be held guiltless and justified in law.

Such are the main provisions of our statute law in regard to the suppression of riots, and it must ever be remembered by the officers and men of the militia, when called on to aid in the suppression of a riot, that they are always acting *under* and *in subordination* to the civil authorities, to assist them to repress and control a crime deemed too powerful to be restrained by the ordinary force of the civil power. Under our law I am clearly of the opinion that the Governor, judge of any court of record, sheriff, mayor of any city, three selectmen, three aldermen, or three justices of the peace, whenever in their opinion there is occasion for the suppression of a riot then going on, or for the prevention of one which they believe to be impending, may issue their order to the officer actually in command of any organization or detachment of the active militia to turn out his command properly armed and equipped to aid the civil authorities in suppressing or preventing such riot. The military officer receiving such order should obey it with the same promptness and alacrity he would give to the order of his military superior. The order may be written or verbal, but unless in case of extreme urgency, every officer would be justified in insisting on its being in writing and signed by the civil authority issuing it. The following form for the order is suggested, although its precise wording is immaterial :

.....N. H.....1888.

To.....

.....⁽¹⁾
Commanding.....N. H. N. G. :

SIR,— You are hereby ordered to report with your command
fully armed and equipped at..... in said.....
.....and there assist the civil authorities in suppressing a riot
⁽²⁾
.....

..... }
..... } ⁽³⁾
..... }

The military officer receiving an order from the proper civil authorities to aid them in suppressing a riot, should as soon as possible report the *fact* that such order has been issued to him to his immediate military superior, by whom the same should be transmitted through the customary channels to the general commanding. Although the order be issued to one officer by the civil authorities, his superior will always, if he deems proper, join the force and take command, and will thereby become responsible to the civil authorities as fully as his junior to whom the order was issued. Having mustered his men and seen that they are properly equipped for the service for which they are ordered, the officer in command will report at once to the authorities issuing his orders, or to such other civil authorities as he is by them directed, at the place designated in his order. When confronted with the rioters, and always before proceeding to extremities, the commander should ascertain whether the mob have been ordered to disperse, as provided by section 1 of said chapter 257; if such proclamation has not been made he

(1) Insert rank. (2) Insert the words "now going on," or "believed to be impending," as the case may be. (3) Add civil title.

should insist on its being done by a proper magistrate, and if that for any reason be impracticable he should do it himself.

Having received such instructions as the civil authorities in command choose to give, which ought to be and doubtless in most cases will be general in their nature, the commander should endeavor faithfully and conscientiously to carry them out to the best of his ability; but as it is to be presumed that the troops will not be brought into actual collision with rioters until the resources of the civil authorities have been nearly if not quite exhausted, and as the soldier, like the member of any learned and exclusive profession, is the best judge of the possibilities and limitations of his special art, — the military commander, while he should honestly strive to carry out the directions he may receive from the civil authorities according to their true intent and meaning, is still, in the ordering and direction of his troops, and in the selection of the military measures required to carry his orders into execution, the sole and only judge of what is to be done.

It must always rest with the military commander in his professional discretion to prescribe the formation of his troops, and to determine when, as a military necessity, he should open fire or use the bayonet.

The request of the civil authorities to open fire, or their positive order to cease firing, would not, in my opinion, furnish much if any protection to the officer in command if called to answer for his act in a civil court; the propriety or impropriety of his action would be determined by the military necessities of the case when considered in connection with the directions he had received from the civil authorities.

As has been said before, the orders of the civil authorities to the commander of troops engaged in the suppression of a riot will in most cases be general, and if they be

so, the commander will err if he seek for more positive or specific instructions, for so long as he is simply carrying out their general directions, if he act with reasonable military skill and discretion, uninfluenced by cruelty, malice, or other improper motive, he will receive full protection from the law. Should the civil authorities, however, choose to issue positive and specific directions regulating the action of the troops either before or when engaged in actual conflict with the mob, then the commander will carefully consider whether such orders can be obeyed with safety to his command, and if as a military question he is convinced they cannot be carried out without unnecessary loss, either to the soldiers or mob, he may then properly decline to obey them until so modified that military prudence will permit their execution. For instance, were the commander instructed by the civil authorities to disperse a certain mob without firing a shot, when it was apparent to him that the character, bearing, and arms of the rioters were such that to carry out these orders would involve unnecessary loss to his command, he would properly decline to obey them until modified, but if in the attempt to execute the orders given him under the same circumstances he became actually engaged with the mob, and the safety of his command demanded, he should unhesitatingly open fire, even if his orders were to the contrary. In my opinion all enlisted men and subordinate officers engaged in this duty will be fully protected in obeying any order from their superiors not clearly and manifestly unlawful, if they act without cruelty or malice.

Finally, I would compress my conclusions into the following propositions, which, it seems to me, are safe to be followed by the officers of our troops when aiding the civil officers in putting down mobs :

1. Take orders only from the civil authorities duly authorized to issue them, or from the civil officers under whom they may place you.

2. Be sure that a riot as defined by statute exists, and that the rioters have been duly ordered to disperse, before you take active measures against the mob.

3. Endeavor honestly and conscientiously to execute the orders of the civil officers according to their true intent and meaning, but if the carrying them out would apparently unnecessarily imperil the safety of your command, or if in the attempt to execute them your troops' safety is imperiled, act as your military judgment dictates.

4. Allow no interference with the military ordering, direction, and movements of the troops.

Very respectfully, your obedient servant,

J. G. BELLOWS,

Judge-Advocate-General.

TO MAJOR-GENERAL A. D. AYLING,

Adjutant-General, Concord, N. H.

REPORT OF THE COMMITTEE
ON THE
Revision of the Rolls of Soldiers and Sailors
IN THE
WAR OF THE REBELLION.

To His Excellency the Governor :

The committee appointed on July 27, 1887, to supervise the revision of the rolls of the soldiers and sailors of New Hampshire having part in the war of the Rebellion, have attended to the duty assigned them and at this time make report.

The authority under which the work has proceeded is the action of the Legislature as embodied in the legislation of 1885 and 1887.

As the three acts and resolves relating to this subject particularly specify the objects and extent of the work, and the methods to be employed in its prosecution, we here recite them for convenience in reviewing the progress already made and examining the recommendations that may be submitted :

AN ACT TO PROVIDE FOR THE PUBLICATION OF A RECORD OF
NEW HAMPSHIRE SOLDIERS AND SAILORS IN THE WAR OF
THE REBELLION.

SECTION 1. The adjutant-general shall, as soon as practicable after the passage of this act, under the direction of Governor and

Council, prepare and publish a record of all soldiers and sailors who served in the war of the Rebellion from the State of New Hampshire; such record to contain the name, residence, date of enlistment, to what city or town assigned, date of muster in, rank, promotions, wounds received, date of discharge, muster out or death, date and place of death since discharge or present residence, and such other facts as shall make the same, as far as practicable, a complete and concise military record of each soldier or sailor so serving; and for this purpose the adjutant-general is authorized to employ such clerical assistance as may be necessary.

SECT. 2. Two thousand copies of said record shall be printed by the state printer and distributed as follows, namely: One copy to each city and town in the State, one copy to each public library in the State, one copy to each post of the Grand Army of the Republic in the State, fifty copies to the New Hampshire Historical Society, and the remainder to be placed in the custody of the trustees of the state library, who are hereby authorized to exchange the same for similar publications by other States, and to dispose of the same at cost of paper, printing, and binding.

SECT. 3. For the purpose of carrying into effect the provisions of this act, a sum not exceeding twelve hundred dollars is hereby appropriated annually for two years, commencing September 1, 1885, to be expended under the direction of the Governor and Council, and the Governor is hereby authorized to draw his warrant on the state treasurer for the said amount.

SECT. 4. This act shall take effect upon its passage.

— *From Pamphlet Laws of 1885, chap. 12.*

AN ACT IN AID OF AN ACT TO PROVIDE FOR THE PUBLICATION
OF A RECORD OF NEW HAMPSHIRE SOLDIERS AND SAILORS IN
THE WAR OF THE REBELLION.

SECTION 1. The selectmen or assessors of each town and city shall, at the same time they distribute the blank inventories for the assessment of taxes for the year 1886, also distribute such blanks as may be seasonably provided by the adjutant-general, for the purpose of collecting the information required by the provisions of the act "to provide for the publication of a record of New Hampshire soldiers and sailors in the war of the Rebellion," approved July

23, 1885, and every person having such information shall make answer in writing, so far as possible, to such questions as may be in such blanks, and the same shall be returned and delivered to said selectmen or assessors before the fifteenth day of April, as is provided by law for the return of inventories of taxable property. The papers returned to the selectmen or assessors, under the provisions of this act, shall be returned to the office of the adjutant-general by them within thirty days after said fifteenth day of April.

SECT. 2. Any officer or person violating the provisions of this act shall be subject to a fine of fifty dollars for each offence, to be recovered in an action of debt by the adjutant-general, and all sums of money so recovered shall be applied in carrying out the provisions of said act of July 23, 1885.

— *From Pamphlet Laws of 1885, chap. 75.*

AN ACT IN AID OF CHAPTERS 12 AND 75 OF THE SESSION LAWS OF 1885, TO PROVIDE FOR A RECORD OF THE NEW HAMPSHIRE SOLDIERS AND SAILORS IN THE WAR OF THE REBELLION.

SECTION 1. The record of the soldiers and sailors of this State, to be compiled under the authority of said acts by the adjutant-general, shall contain a statement of the number of men required and the number furnished for the war of the Rebellion by each town in the State under each call; and said record shall also contain the names of all men recruited under the first call in 1861, for three months, whether they were organized into the first regiment of volunteers, mustered out of service without being sent out of the State, or were re-enlisted for a longer term of service. Selectmen of towns and the mayors of cities as may be required shall cause such information concerning soldiers and sailors who are or have been residents of their respective towns as may be required for the purposes of this act, and of the acts of which this is an amendment, to be collected and forwarded to the adjutant-general, subject to such penalties for default as are provided in said chapter 75 of the laws of 1885.

SECT. 2. For the purpose of the continuation of the work required by said acts, a sum not exceeding fifteen hundred dol-

lars is hereby appropriated annually for two years, commencing September 1, 1887, to be expended under the direction of the Governor and Council, and the Governor is hereby authorized to draw his warrant on the state treasurer for the said amount.

SECT. 3. This act shall take effect upon its passage.

— *From Pamphlet Laws of 1887, chap. 40.*

It will be observed that these acts do not require that the age and birthplace of the soldier, sailor, or marine be given, though this data has prominence in many similar reports in other States. The requisite facts are in the manuscript records, and whether they shall be included in the revision will be a question for future legislative consideration. This is undoubtedly a very valuable feature of such works, and the advantages of incorporating it in our revision are so palpable that space need not be taken for the discussion of it in this connection. We therefore pass from that and other recommendations, which might involve legislative action, to a statement of the results of our examination of the inception and progress of the work as already undertaken.

The necessity of this revision had been realized for a long time, and at length the popular demand for legislative action became imperative. There were many reasons which impelled the undertaking. The first published list of the names of the men who served in New Hampshire organizations was contained in the two volumes of the Adjutant-General's Reports of 1865. The revision of the next year was conspicuously defective in many respects. While additions and corrections were made to a considerable extent, a large part of the material embodied in the two volumes published in 1865 was omitted. No roll of the first regiment was given in the edition of 1866, and in the rolls of all the other organizations a great number of names were not reprinted. By this method it transpired that neither series of published rolls was com-

plete in any respect as a catalogue of names of the men in the service. There was no uniformity of treatment of the different organizations in either work, as regards the statement of residences or places of assignment. In the rolls of the first regiment the residences of the men of only part of the ten companies were given. This glaring defect marks the rolls of all the organizations. In the fifth, seventh, and other regiments we find the residences of men of whole companies not unfrequently marked "unknown." The same marking was against the names of many well-known officers. This deficiency of the record can be repaired in a great measure by diligent use of the information that may now be obtained. It will not, however, be available many years unless systematically collected and carefully recorded. There is even now opportunity for confusion, unless a careful distinction is made between the actual place of residence and the place of assignment. Many considerations operated to induce men to accept an assignment on the quota of other towns or wards than those of actual residence. It is important that the revision should contain, so far as practicable, distinct statements in separate columns, to distinguish the record of residence from the record of assignment on the local quotas. As a matter of detail it is suggested that in the column of present residence, the place of actual present residence be printed in *italic* and the last known place of residence in Roman, or *vice versa*. The first publications were necessarily defective in their statements of individual records. Many other defects in the work were not necessary. On every page were errors in transcription of names, errors in spelling, and errors in dates, besides the wholesale errors of omission already mentioned. This resulted in part from unsystematic clerical work and in part from a lack of proper material. It is certain that no systematic comparison of the copies of rolls with the original signatures

of the men was attempted. Many rolls then scattered among many custodians have since been placed in the archives of the State. Hundreds of worthy men stand on the reports of 1865 and 1866 with an equivocal or dishonorable record, and a multitude are not finally reported as either regularly or irregularly out of the service. The record of prisoners of war is conspicuously defective in these books. Probably not one in five, and perhaps not one in ten, of those who suffered capture and imprisonment are so mentioned. This has been made a matter of special attention at Washington, and the results are available for this work.

Such were some of the most striking defects in the records actually published. There were, moreover, records entirely omitted which were of equal importance with those actually used. Under the call of April 15, 1861, twenty-eight recruiting stations were established, and 2,004 men were enlisted for three months' service.* The first regiment included 765 of these volunteers. The remainder — about 1,239 — after remaining in camp a considerable time were dismissed or re-enlisted into the second and the later regiments. There is no published list of these men as a body by themselves. Most of them saw service subsequently, but there is no way of distinguishing them as the first who responded. They are certainly worthy of the simple reward of recognition in the published records as the first to hear and heed their country's summons, and no local history of the period is regarded as complete without some mention of the first volunteers in the war for the Union.

No attempt was made to publish any of the names of New Hampshire men in the naval service or marine corps. A large contribution to these branches of the general service was made from this State. These men are, of course, entitled to conspicuous and enduring

* N. H. in the Rebellion, p. 54.

place on the roll of honor, equally with their compatriots of the army, and it would be the grossest ingratitude on our part to ignore them. The transfers from the military to the naval service, indicated by the published rolls of 1865 and 1866, point out another deficiency in that record. The subsequent individual record is in all cases a blank. This resulted from the fact that no reference was made to the records of the Navy Department at Washington for the data to complete the record. An incomplete record is, for most purposes, no record at all. When it appears that a man is transferred from one of the regiments to the naval service, a reasonable diligence in tracing the name in the naval records will give the name of the ship on which he served, with the date of his wounds, disability, death, promotions, discharge, and other details which are desirable to perfect the individual records. There was also a vast number of transfers of officers and men from one regiment to another and from one branch of the military service to another of the same service. In this connection we might mention the transfers from the volunteer service to the regulars, transfers to staff duty, transfers in the many departments of medical service, transfers to commands in the organizations of colored troops, transfers to organizations of U. S. Volunteers, transfers to invalid corps and veterans reserve corps, transfers to special service, transfers to service in signal corps, brigade bands, and other auxiliary service. Much of the material for completing the records in these different lines of duty is at Washington, and is not in our state archives. Without the use of this material our revision will be incomplete and unsatisfactory. This class of material is contemporary with our own state rolls. It was made in the war period, and is the final authority. Not to avail ourselves of it for the completion of our proposed revision would be to subject all of our people who may ever hereafter have recourse to the work

to the delay, inconvenience, and uncertainty of personal reference to or correspondence with the Washington officials, for a record of facts that properly belongs in the volumes which are to be made accessible to all, in the libraries, public offices of every town in the State, and other proper custody. In addition to the records made in the war time, it should be remembered that legislation and official adjudication have been constantly making changes in the record down to the present day. Acts of Congress have restored names to the rolls, corrected unreasonable judgments of courts martial, and provided opportunities for relief from unfair, unjust, or undeserved orders and findings. A revision of our rolls should be made with reference to all such changes in the records of the State and of the national government. The official award of medals and similar recognitions of meritorious service may well be included.

The act of 1887 also requires the present residences of the survivors and the date and place of decease of those dying since the war to be included in the work. This at first view may seem to be an almost impracticable feature; but a brief review of the sources of information will demonstrate the practicability of the undertaking, and its great value for actual use as well as for historical purposes is manifest.

1. Nearly five thousand veterans are definitely located by the rosters of the posts of the Grand Army of the Republic in this department.

2. Hundreds of names and residences are given in the annual registers of visitors at the Weirs reunions.

3. The several regimental organizations have well-kept registers of reunions and records of residences of their associates.

4. The histories which are in preparation for almost every regiment and necrologies which are annually com-

piled give still more complete information as to individual veterans.

5. The Army and Navy Survivors Division in the Pension Department makes this a specialty, and has the addresses of all who have been applicants for pensions or witnesses in pension cases (Report of Commissioner of Pensions, 1888, p. 91).

6. The published lists of pensioners arranged by States and counties are valuable for this purpose.

7. Several States have published lists of all resident veterans, giving their names, with the organizations and States in which they served.

8. County and town histories published or prepared since the war and the work of local specialists in this department of research contribute additional material.

9. The Quartermaster-General's office, upon which devolves the duty of caring for the graves of Union soldiers, both in public and private burial places as well as the national cemeteries, has the record of deaths and location of the graves of hundreds of New Hampshire soldiers and sailors. This record includes deaths since the war, inasmuch as the government is constantly providing headstones wherever they are required, and the corresponding returns yield a great amount of material available for the work under consideration.

10. The state treasurer's accounts, the papers of local agents, and the reports of town, city, and county officers, relative to disbursements for state aid to soldiers' families, are still available for reference in fixing residences of the beneficiaries.

11. The law is still operative requiring local municipal officers to collect and forward information essential to this work, and a large number of returns have been made, — from some towns with admirable care, accuracy, completeness, and promptness, while in other localities the work has been neglected or indifferently performed.

It may be found advisable to give the local agents in this work some state compensation, thereby rendering them more directly responsible to the Adjutant-General.

It is possible that the veterans and the people generally in some of our municipalities may not sufficiently regard the importance of prompt and effective local action in this behalf. It is not expected that local or state effort will be made to find the actual residences at the time of enlistment or the more recent domiciles or dates of death of members of that class of men who, though carefully credited on local quotas, were purely mercenary strangers in every sense of the term. As a rule they were never within the limits of the districts for which they were supposed to serve, and did not remain in the service long enough to be introduced to their constructive townsmen who were "to the manor born." It is not in the interest of the "bounty jumpers" that this great work is attempted by the people of New Hampshire.

There are special facilities open to those who will co-operate in the several cities and towns to collect the material for the record of original residence of the men where the entry is now "unknown," the proper place of assignment on the quota where it is not stated, and the present places of residence or dates of death since the war period. It is only to the volunteers and recruits who did not belong to the class usually known as "subs" and "bounty jumpers" that we now refer. It is a peculiarity of the early published reports of 1865 and 1866 that far greater care and accuracy are observable as to assignment on quotas and supposed residence of the "Hessians" than will be found in the records of the genuine New Hampshire men who actually went to the front in the earlier years of the war. The demands of common justice to these men impel us again to advert to the part that the people and the authorities must take locally in order to give every town and city the credits

due them and their own townsmen in the active service, — something better than the oblivion of a fragmentary and imperfect record, if perchance there is any record at all by which any town or city could distinguish its own citizens from the multitude whose names are joined to the legend “residence unknown.”

It is certainly practicable for local agents who undertake the task, to supply this class of facts for the new record, as to which the earlier ones are lamentably deficient. We base this assertion upon actual experience. Reference to the “Fourteenth Regiment Memorial,” page 430, shows how nearly perfect interested individual effort can make the residence and death record which pertains to the period since the war. Similar satisfactory results have been accomplished for all the men furnished by or for the town of Littleton. Lieut. C. H. Greene was the agent of the town, and had nearly three hundred names in his list for investigation and location according to the requirements of the three acts of the Legislature relating to this work. Other towns have fully complied with the law. A local agent has many advantages not conveniently available to clerks employed in the central office. Among them are the records made by town officials in accordance with General Laws, chapter 54, section 2, Session Laws, 1883, chapter 7, and Session Laws, 1885, chapter 41, tax-lists, check-lists, records of marriages, births, and deaths, files of local newspapers, inscriptions in burial places, memorial lists of the local G. A. R. posts, local post rosters, and other local records; but more important than all else is the information that friends, neighbors, and relatives of men in the service are now able to impart while all the events are fresh in memory.

What particular agency is to be employed is not a matter of sufficient present importance to require special consideration in this connection; but it hardly admits

of question that some means should be adopted to bring into the use of the State the local information which, though now positive, will in a few years be only uncertain tradition. We respectfully urge this subject upon the attention of the people's representatives as one worthy of special attention and favorable action.

Blanks for the use of selectmen, town agents, and any others who are disposed to co-operate in collecting this material for the work have been provided and distributed. These blanks and others specially drawn for the use of regimental historians in the same direction, may be obtained on application to the Adjutant-General.

12. Another systematic record of information as to veterans of New Hampshire service is kept by the Adjutant-General in aid of this work. The correspondence of the office relative to testimonials of service, inquiries for personal records, photographs for the collection now inaugurated, and the ever present subject of evidence for use in reference to various matters pending before the departments at Washington bring the Adjutant-General into contact with the veterans, and daily additions are thus made to the material for the work in hand.

13. Provision has been made for ascertaining the names of surviving veterans of the Union service, with their organizations and length of service, as a special feature of the next federal census, and if this should be available before the publication of our state record, it will yield data sufficient, with what may be gathered for the same purpose by methods herein described by state action, to make that record as complete and satisfactory as it can practicably be, after such a lapse of time since the end of the war; and we believe it will be the most perfect of any of the similar undertakings now in progress. The special value of the material collected by the federal census as an aid to this work lies in the information necessarily contained in it as to our men who are located in

other States, especially the more distant ones. This feature of the census will benefit other States in the same way in a greater or less degree, according to the number of their men scattered over the country outside the limits of the State for which they served.

At the time of the pendency of the census bill before Congress, this committee personally brought the subject of incorporating such a provision in the act to the attention of members of both committees at Washington. Our senators and representatives actively supported the proposition, and it had valuable aid from many others, both in public and private positions.

It is also important to have the names of engagements referred to in the record designated by some uniform nomenclature. There is an official name for each of the hundreds of battles and minor affairs which are necessarily mentioned in such records. Much confusion has resulted from a lack of uniformity. Some engagements are known by several different names. This proposed work will conform to the one authentic series of names which is found to have governmental sanction. A revision of the battle record of our state organizations is required. Those placed in the old reports are inaccurate and defective. It will, perhaps, be found best to place the battle record immediately before the rolls of each organization.

The act also requires a more complete and systematic tabulation of the number of men required and the number furnished by each subdivision in the several districts of the State under each call. These subdivisions were generally in conformity to the boundaries of city wards and towns.

The records of the provost marshals, which contain the accounts of men furnished by each sub-district, were long ago returned to the War Department at Washington, and no copies were retained for the use of the State.

The necessity of having these statistics accessible in convenient tables, in the same volumes with the rolls, is apparent. It will also be of immediate use in the preparation of this record, for many questions as to the proper place of individual assignments between different towns would be somewhat simplified by considering the state of the account between the town and the government relative to men furnished. The statistical value of this branch of the work cannot be overestimated.

In order to have the record prepared and published with a view to the greatest utility as a work of reference for the thousands who will have occasion to consult it, the utmost care should be taken in the matter of an index. The work will contain nearly forty thousand names, according to the best estimates that can now be made. A complete alphabetical index to these names will render any item of information as to any individual named in it instantly available to the investigator. To get at the same fact without such an index might involve the waste of a day's time. The expense involved in the preparation and publication of a complete index, as a part of the work, is trivial when compared with the resulting economy of time and labor.

We have thus attempted to outline the character and scope of the work contemplated by the Legislature, as indicated by the terms of the three acts of 1885 and 1887.

Our acquaintance with the methods employed in prosecuting the work by the Adjutant-General from official inspection began immediately upon our appointment to this duty. The preliminary work of comparing the names given in the reports of 1865 and 1866 with the official rolls and the original evidence of enlistment papers had been for some time in the hands of Mr. Leonard A. Morrison. He was, however, occupied during the session of the Legislature of 1887 with his duties as a

member of the State Senate, and subsequently resigned his appointment to this office.

He was succeeded by Mr. Harry P. Hammond and Mr. Clarence B. Ranlett, both sons of veterans of the war of the Rebellion, and both painstaking, effective, and enthusiastic workers. The Adjutant-General has devoted all the time at his disposal to constant and judicious oversight and direction of the whole work, and has given it all the benefit of his large experience in military matters and his excellent judgment as to the requirements to be met in works of this character. Both he and his assistant have devoted all the time and labor to it which could be spared from the imperative special and routine duties of the office.

Mr. Hammond began with the first regiment, and Mr. Ranlett with the heavy artillery,—one having the earliest and the other the latest in date of organization as points of beginning; and they have worked towards a central objective point of completion as rapidly as accuracy, conciseness, and thoroughness would permit. The manuscript to be examined consists of original enlistment papers, bearing usually the autograph signature of the soldier, with the descriptive list, also the muster-in rolls, original rosters of the company, detachment rolls, monthly returns, and the muster-out rolls. The first thing to be examined is the name. As the chances are almost even that there is a mistake or misprint, recourse is had to the autograph signature in the original enlistment. If that is missing, comparison of the other records on which the name appears is made, and correspondence and other means of verification are employed. This requires patience and discrimination, otherwise a multitude of misprints and clerical errors would be perpetuated.

“Thrice happy he whose name has been well spelt
In the dispatch. I know, a man whose loss
Was printed Grove, although his name was Gross.”

“There is fame!” says Byron, “a man is killed at Waterloo; his name is Grose, and they print it Grove.”

The completion and perfection of the service record in each case requires that dates be found when not already given, corrected when erroneous, conflicting authorities, which are numerous, reconciled, and additions made according to the changes to which the official papers have been subjected by official action at Washington and elsewhere, and by recovery of documentary evidence from time to time. When all the data from the files in this office have been sifted and utilized, recourse must be had to other sources outside of the state archives, which have been already enumerated. Pursuing the work by this plan, the Adjutant-General and his assistants have digested the rolls of the first, third, fourth, fifth regiments, and the sharpshooters, in the order named, and the heavy artillery, eighteenth, sixteenth, fifteenth, fourteenth, thirteenth, and twelfth regiments, in the order named. It was found that no revision would be reliable which had not been actually based upon an examination of all the authorities, evidenced by a truthful and accurate transcription. Much that was supposed to have been done with care and thoroughness was not trustworthy. We have not consented that anything should be taken for granted and without verification by those now in charge of the work, relative to ground traversed by their predecessors. All that is now presented for your examination, in the revision of the rolls of these organizations, we are confident will successfully meet any fair test of accuracy. The remaining rolls, between those of the fifth and twelfth, will pass through the same course of examination, verification, and revision. Men of the different regiments were transferred

from one to another in large numbers. We find, for instance, that the second received transfers from the ninth, tenth, eleventh, twelfth, thirteenth, and seventeenth. By noting these transfers in the regiments named and temporarily postponing the revision of the second a considerable saving of labor is effected.

Similar conditions will determine the order in which the work on the several remaining rolls will be taken up. There were, first and last, nearly three thousand men connected with the fifth regiment. Transfers and recruitments also swelled the totals of most of the other regiments. As much labor, therefore, is involved in perfecting the official record to be attached to each name as though the grand total of all the rolls represented that number of different individuals.

In order to secure uniformity in the revision of the individual records, printed blanks are used which indicate the facts to be gathered and arranged. When the data has been found which goes to fill this blank, and it has been carefully verified, so far as it is possible, by consulting persons as well as papers accessible here, in many cases nothing further remains to be done to perfect the record; but if the information available here does not complete the record, the fact of incompleteness is noted, and the paper shows what facts are to be sought in the War Department, Navy Department, or elsewhere, as the case may be.

A copy of the paper to which we have referred is inserted in this connection :

COMPANY .....	.....REGIMENT.
Name	
Birthplace	
Age	
Residence (actual)	
Town or ward of assignment on quota	

Enlisted.....
 Term.....
 Mustered in.....
 Original member, recruit, drafted, substitute.....
 Present residence.....

FINAL RECORD.

Economy in time and expense has been strictly observed in every feature of the work. No opportunity has been consciously passed for getting reliable information in the possession of individuals. Thus many important rolls, of which the State had no duplicates, have been obtained. Where it is found that the record was defective as to final discharges the deficiency has, whenever possible, been supplied by the loan of certificates of discharge from the veterans themselves or their representatives and friends. While this involves a great deal of correspondence and takes time, it results in a clear saving of clerical expense at Washington, and the information is the same as that in possession of the War Department. We mention this as an illustration of one among many methods employed, and calculated to reduce to a minimum the amount of labor to be done abroad.

In comparison with similar undertakings in other States, we are satisfied that our own is progressing with greater economy, and at the same time on a more thorough, comprehensive, and satisfactory plan than those generally adopted elsewhere with which we have had any acquaintance. This results in part from the judicious system upon which the work proceeds. All the examination, comparison, and transcription is done in the presence of General Ayling and under his constant personal scrutiny. The employes are retained on account of proved fitness and at wages not higher than private employers would be expected to pay.

It will not be necessary to procure any considerable amount of information from the archives of the federal government until we are satisfied that it is not available at home. For this supplemental work abroad, estimates will be duly submitted to the General Court, and the plan upon which the work must be brought to completion will be determined by additional legislation.

Public experience with the catalogues of men, as given in the reports of 1865 and 1866, is ample proof of the importance of avoiding the vices of that work in the prospective revision. We find, also, by the Revolutionary Rolls, which have been printed recently for the first time in the four volumes edited by Mr. Hammond, — more than a hundred years after the time of the service rendered, — how serious, indeed irremediable, an omission it is that the residences of the soldiers of that war were not ascertained at the time and made a part of the public record. It is a fact, perhaps not generally known, that one of the most judicious and industrious investigators of New Hampshire revolutionary history, after more than six years of continuous labor, has not been able to fix definitely the residences of the men of New Hampshire who participated in the battle of Bunker Hill.

The time is at hand, in our judgment, for making the record of New Hampshire in the war of the Rebellion, so far as the means of addition and correction are available, perfect in every respect in which the former records, published and unpublished, have been imperfect.

A. S. BATCHELLOR,
JOHN C. LINEHAN,

Committee.

APRIL, 1889.

REPORT OF INSPECTOR OF RIFLE PRACTICE.

OFFICE OF INSPECTOR OF RIFLE PRACTICE,
1ST BRIGADE, N. H. N. G.,
CONCORD, May 11, 1889.

GENERAL D. M. WHITE,

Commanding 1st Brigade, N. H. N. G., Peterborough:

GENERAL, — In compliance with the requirements of law, published in G. O. No. 10, A. G. O., Series 1885, and in obedience to General Orders No. 2, Brigade Headquarters, current series, I have the honor to submit the following report :

The tour of inspection was made at the same time the armory inspections took place, and, in consequence, only a limited opportunity was afforded for instruction. The inspection in this department should be as thorough, rigid, and important as any inspection, and the officers and men should so understand it; but it cannot well be when too much work is crowded into too short a period of time. The officers and men in the companies naturally become fatigued after undergoing the strain incident to the armory inspections, each of which averages about two hours in length, and cannot reasonably be expected, and ought not to be required, to appear to the best advantage at the inspection immediately following the first. More than one inspection the same afternoon or evening is not, in my opinion, desirable, neither does this method yield the best results at the second inspection. I am free to admit, that when the tour was ordered I believed both

inspections could be properly made at the same time. I was mistaken. They never should be ordered together.

Every company in the State was visited by me with the exception of F of the Second Regiment and A of the Third, business preventing in the first and illness in the latter case. It was gratifying to learn that in every instance where any substantial effort had been made to impart instruction the men were enthusiastic and manifested commendable interest. Company officers must appreciate the importance of rifle practice and instill it upon the minds of their men before satisfactory results can be obtained. If, as seems to be the case in several companies, a few men can qualify in one or more of the classes in marksmanship, there should be no good reason why a majority should not, unless it be because of lack of interest, largely the result of the failure of officers to appreciate the necessity of first acquiring a knowledge of how to use a rifle intelligently and of imparting this information to the members of their companies; of course I do not wish to be understood as intending to have the foregoing apply to every company in the brigade, because in some it has been impossible to have even armory practice, and in others range practice could not be held. Company D of the First Regiment and C of the Second have no armory targets, the latter not even having armory accommodations. Companies B, K, E, and H of the First Regiment, stationed at Manchester, had no armory practice during the year, the authorities of the city objecting to the use of City Hall, where practice formerly took place, and the owners of the building in which the armory of Company E is located declining to permit gallery practice therein. Companies K and C of this regiment have armory ranges, but had no practice.

Before men can be expected to achieve satisfactory results on the range they should have thorough instruction

and practice in the armory, and I would recommend that no soldier be allowed to fire in the range until after he shall have had one season's instruction and practice in the armory. Another matter which seems not to be comprehended as generally as it should be is the necessity of exercising the greatest care of the rifles. It appears very strange that officers will permit men to use their guns for camp stools, and in other ways allow them to be abused, thus impairing, if not wholly destroying, their usefulness for rifle practice, and for service should the exigency arise. It has been my endeavor to prevent any further abuse of the rifles by calling the attention of the men to the subject whenever it was deemed necessary. My inspection of the guns showed them, with comparatively few exceptions, to be in good condition, but it is important that all should be, and should be so kept.

As ordered, instructions were given relative to the records. In some companies there were no entries upon the record of rifle practice, and in others only a portion of the information called for appeared. There were several companies, and at the headquarters of the Third Regiment, where the records were correctly kept, or substantially so. As no instructions had ever been given in this matter it was not entirely unexpected to find a lack of uniformity in keeping the records. I endeavored to give such instructions as will secure a uniform method hereafter.

It is exceedingly unfortunate that several companies have no field ranges, and the prospects do not appear to be encouraging that they will secure them in the early future. If the men can obtain practice in no other way it occurs to me that it would not be unwise to have them devote as much time as possible to this branch of the service when they are attending the annual encampment. The range at Concord controlled by the State is admirably located, although not sufficient in its accommoda-

tions, and its advantages should be given to the men who do not have any where they are stationed. The expenditure of a few hundred dollars in increasing the facilities at the state range would be money well invested, and this will have to be done before more than a limited number can practice thereon.

The following companies have field ranges which they can use:

First Regiment—A and B, stationed at Dover, 300 yards.

Second Regiment—Field and Staff, at Keene, 800 yards; G and H, at Keene, 800 yards; I and C, at Nashua, 200 yards; E, at Rochester, 300 yards; D, at Newport, 800 yards; F, at Farmington, 300 yards.

Third Regiment—Field and Staff, at Concord, 800 yards; G, at Lebanon, 800 yards; A, at New London, 800 yards; H, at Franklin, 800 yards; C, at Concord, 800 yards; F, at Bristol, 300 yards; E, at Plymouth, 800 yards; K, at Wolfeborough, 300 yards; D, at Pittsfield, 500 yards.

Troop A, Cavalry, at Peterborough, 700 yards.

During the practice season of 1888 many officers and men qualified in the different classes, and have or will receive the buttons and badges specified in General Orders No. 6, A. G. O., series of 1888. The sharpshooters' and marksmen's badges were designed by the Adjutant-General and were ordered of the manufacturer by him. I did not see the design before the badges were ordered.

The following is a list of the officers and men who qualified and requalified in the different classes during the practice season, 1888, as appears by the returns made to my office:

QUALIFICATIONS DURING THE SEASON OF 1888.

ORGANIZATION.	Names.	Rank.	Score.
CAVALRY.			
THIRD CLASS.			
Troop A.....	Charles H. Dutton.....	Lieutenant.....	55
"	Forest A. Wilson.....	Private.....	57
"	Gilman Foote.....	Private.....	54
"	Albert J. Powers.....	Private.....	57
	Total, 4.		
FIRST REGIMENT.			
THIRD CLASS.			
Company A.....	James Smith.....	Corporal.....	*
"	James Hathaway.....	Corporal.....	*
"	Frank Keenan.....	Private.....	*
"	Frank H. Burns.....	Private.....	*
Company C.....	W. H. Roberts.....	Corporal.....	51
"	H. D. Gould.....	Private.....	54
Company D.....	Bion I. Brown.....	Captain.....	66
"	David Robinson.....	Corporal.....	57
	Total, 8.		
SECOND CLASS.			
Company A.....	Frank H. Burns.....	Private.....	58
SECOND REGIMENT.			
THIRD CLASS.			
Company E.....	J. W. Cockery.....	Corporal.....	65
"	A. A. Chesley.....	Private.....	53
"	Fred B. Foss.....	Private.....	54
"	Carlos Pearl.....	Private.....	57
"	Ellsworth Pearl.....	Private.....	61
Company F.....	F. J. Hutchins.....	Private.....	52
"	C. E. Peabody.....	Private.....	52
"	F. J. Tibbitts.....	Private.....	57
"	H. C. Wentworth.....	Private.....	56
"	John Whitehouse.....	Private.....	57
Company G.....	F. O. Nims.....	Captain.....	54
"	E. O. Upham.....	Sergeant.....	54

* Score not reported.

QUALIFICATIONS DURING THE SEASON OF 1888. — *Continued.*

ORGANIZATION.	Names.	Rank.	Score.
Company G.....	D. H. Dickinson.....	Sergeant.....	52
"	W. J. Bass.....	Private.....	53
"	C. H. Clark.....	Private.....	63
"	C. T. Colony.....	Private.....	60
"	J. J. Colony.....	Private.....	59
"	H. W. Eastman.....	Private.....	59
"	F. P. Gaynor.....	Private.....	60
"	W. B. Hills.....	Private.....	61
"	E. A. Mitchell.....	Private.....	55
"	N. J. McDonald.....	Private.....	51
"	F. F. Page.....	Private.....	55
"	G. A. Quilty.....	Private.....	60
"	C. W. Shaw.....	Private.....	60
"	E. F. Smith.....	Private.....	54
"	C. L. Seavey.....	Private.....	51
Company H.....	J. P. Wellman.....	Captain.....	56
"	Frank Chapman.....	Lieutenant.....	51
"	F. E. Barrett.....	Sergeant.....	54
"	Sumner Nims.....	Sergeant.....	54
"	F. C. Nims.....	Sergeant.....	53
"	A. E. Lawrence.....	Corporal.....	54
"	A. E. Bissell.....	Private.....	61
"	A. O. Dexter.....	Private.....	56
"	A. G. Isham.....	Private.....	52
"	G. A. Maxham.....	Private.....	58
"	T. A. Smith.....	Private.....	60
"	G. W. Stoddard.....	Private.....	51
"	W. E. Wright.....	Private.....	56
"	C. H. Tenney.....	Private.....	51
Company I.....	Frank H. Thompson.....	Sergeant.....	52
"	Frank M. Kelley.....	Sergeant.....	52
SECOND CLASS.	Total, 43.		
Company E.....	F. L. Chesley.....	Lieutenant.....	56
"	G. Ira Berry.....	Lieutenant.....	54

QUALIFICATIONS DURING THE SEASON OF 1888. — *Continued*

ORGANIZATION.	Names.	Rank.	Score.
Company F.....	C. E. Peabody.....	Private.....	53
Company G.....	F. O. Nims.....	Captain.....	52
"	W. J. Bass.....	Private.....	53
"	C. H. Clark.....	Private.....	60
"	C. T. Colony.....	Private.....	60
"	J. J. Colony.....	Private.....	57
"	H. W. Eastman.....	Private.....	51
"	F. P. Gaynor.....	Private.....	53
"	W. B. Hills.....	Private.....	66
"	N. J. McDonald.....	Private.....	51
"	F. F. Page.....	Private.....	52
"	George A. Quilty.....	Private.....	60
"	C. W. Shaw.....	Private.....	58
Company H.....	J. P. Wellman.....	Captain.....	54
"	E. A. Shaw.....	Lieutenant.....	60
"	F. E. Barrett.....	Sergeant.....	51
"	Sumner Nims.....	Sergeant.....	51
"	F. C. Nims.....	Sergeant.....	52
"	A. E. Bissell.....	Private.....	58
"	T. A. Smith.....	Private.....	54
"	W. E. Wright.....	Private.....	58
"	C. H. Tenney.....	Private.....	53
	Total, 24.		
FIRST CLASS.			
Field and Staff.....	H. W. Keyes.....	Sergeant-Major..	60
Company F.....	C. H. Pitman.....	Captain.....	60
Company G.....	C. W. Starkey.....	Lieutenant.....	63
"	C. E. Joslin.....	Sergeant.....	60
"	C. H. Clark.....	Private.....	63
"	C. T. Colony.....	Private.....	60
"	W. B. Hills.....	Private.....	66
"	George A. Quilty.....	Private.....	60
Company H.....	E. A. Shaw.....	Lieutenant.....	61
	Total, 9.		

QUALIFICATIONS DURING THE SEASON OF 1888. — *Continued.*

ORGANIZATION.	Names.	Rank.	Score.
AS MARKSMEN.			
Field and Staff.....	A. W. Metcalf.....	Lieut. Colonel...	62
"	H. W. Keyes.....	Sergeant-Major..	51
Company G.....	C. W. Starkey.....	Lieutenant.....	57
"	C. E. Joslin.....	Sergeant.....	58
"	E. M. Keyes	Sergeant.....	63
"	C. H. Clark	Private	64
"	C. T. Colony.....	Private	50
"	George A. Quilty.....	Private	59
Company H.....	E. A. Shaw.....	Lieutenant.....	51
	Total, 9.		
AS SHARPSHOOTERS.			
Field and Staff.....	A. W. Metcalf.....	Lieut. Colonel...	59
Company G.....	E. M. Keyes.....	Sergeant.....	51
"	C. H. Clark	Private	58
"	C. T. Colony.....	Private	49
"	George A. Quilty.....	Private	51
Company H.....	E. A. Shaw.....	Lieutenant.....	55
	Total, 6.		
THIRD REGIMENT.			
THIRD CLASS.			
Company C.....	F. D. Hurd.....	Corporal	57
"	E. W. Dutton.....	Private	53
"	J. S. Mathews.....	Private	52
"	J. S. Porter.....	Private	56
Company D.....	D. H. Merrill....	Lieutenant.....	58
"	L. H. Harvey.....	Corporal.....	52
"	E. M. Locke.....	Private	61
Company E.....	George H. Colby.....	Captain.....	55
"	W. C. Hobart.....	Sergeant.....	54
"	F. E. Smith.....	Corporal.....	54
"	Everett Fellows.....	Corporal.....	52
"	B. G. Coburn	Corporal.....	52
"	E. R. Mitchell	Corporal.....	52

QUALIFICATIONS DURING THE SEASON OF 1888. — *Continued.*

ORGANIZATION.	Names.	Rank.	Score.
Company E.....	C. B. Berry.....	Private.....	52
"	L. T. P. Colby.....	Private.....	51
"	A. E. Downing.....	Private.....	54
"	Harry Rogers.....	Private.....	51
Company H.....	Frank W. Clough.....	Musician.....	62
"	Louis E. Bennett.....	Private.....	62
"	William J. Moulton.....	Private.....	56
"	Edward J. Judkins.....	Private.....	60
"	John E. Long.....	Private.....	52
"	Thomas Hill.....	Private.....	53
	Total, 23.		
SECOND CLASS.			
Company D.....	Forest F. Hill.....	Captain.....	61
"	D. H. Merrill	Lieutenant.....	54
"	F. W. Wheeler.....	Sergeant.....	61
"	E. M. Locke.....	Private.....	55
"	A. T. Locke.....	Private.....	55
"	E. B. Drake.....	Private.....	54
Company E.....	George H. Colby.....	Captain.....	54
"	E. R. Mitchell.....	Corporal.	53
"	B. G. Coburn.....	Corporal.....	54
"	C. B. Berry..	Private.....	54
"	L. T. P. Colby.....	Private.....	51
Company G.....	E. H. Plummer.....	Sergeant.....	60
Company H.....	Frank W. Clough.....	Musician.....	60
"	Joseph W. Patterson.....	Private.....	55
Company K.....	Albert H. Fowler.....	Sergeant.....	59
"	Herbert E. Davis.....	Sergeant....	51
"	Eugene L. Peaslee.....	Sergeant.....	51
	Total, 17.		
FIRST CLASS.			
Company D.....	Forest F. Hill.....	Captain.....	
"	F. W. Wheeler.....	Sergeant.....	
Company E.....	Ed. J. Davis.....	Sergeant.....	

QUALIFICATIONS DURING THE SEASON OF 1888. — *Continued.*

ORGANIZATION.	Names.	Rank.	Score.
Company G.....	C. H. Clough.....	Captain.....	
“	E. S. Downs.....	Lieutenant.....	
“	G. A. Freeto.....	Lieutenant.....	
“	B. M. Reynolds.....	Sergeant.....	
“	E. H. Plummer.....	Sergeant.....	
“	G. Poland.....	Corporal.....	
“	A. W. Buckwell.....	Corporal.....	
Company H.....	Frank W. Clough.....	Musician.....	
	Total, 11.		
AS MARKSMEN.			
Field and Staff.....	Harry B. Cilley.....	1st Lt., R. Q. M..	53
“ “	A. M. Dodge.....	Com. Sergeant..	53
Company E.....	Ed. J. Davis.....	Sergeant.....	59
Company G.....	E. S. Downs.....	Captain.....	60
“	G. A. Freeto.....	Lieutenant.....	58
“	B. M. Reynolds.....	Sergeant.....	53
“	E. H. Plummer.....	Sergeant.....	55
“	A. W. Buckwell.....	Corporal.....	51
Company H.....	Albion W. Rollins.....	Sergeant.....	53
“	Elmer R. Silloway.....	Sergeant.....	52
“	Frank W. Clough.....	Musician.....	53
	Total, 11.		
AS SHARPSHOOTERS.			
Field and Staff.....	Harry B. Cilley.....	1st Lt., R. Q. M..	50
“ “	A. M. Dodge.....	Com. Sergeant..	54
Company E.....	E. J. Davis.....	Sergeant.....	49
Company G.....	E. S. Downs.....	Captain.....	54
“	G. A. Freeto.....	Lieutenant.....	55
“	B. M. Reynolds.....	Sergeant.....	49
“	E. H. Plummer.....	Sergeant.....	52
“	A. W. Buckwell.....	Corporal.....	56
Company H.....	Albion W. Rollins.....	Sergeant.....	60
“	Elmer R. Silloway.....	Sergeant.....	52
“	Frank W. Clough.....	Musician.....	52
	Total, 11.		

No returns have been received from the Field and Staff and Companies D and K of the Second Regiment.

I would recommend that orders be issued requiring company commanders to give instruction in rifle practice at least two hours monthly.

As a citizen of the State, I should be glad to see the New Hampshire National Guard able to place a rifle team in the field to compete, and that successfully, with those of our sister States. We have the material, as is evidenced from the number who have qualified in the marksmen's and sharpshooters' classes, and all that is necessary to develop it is a more liberal policy towards this department.

In performing the tour of duty I received every assistance from company commanders. I also desire to acknowledge courtesies extended by Gen. Elbert Wheeler, Inspector-General.

I have the honor to remain

Your obedient servant,

DANIEL B. DONOVAN,

Major, and Inspector of Rifle Practice.

RETURN

OF THE

NEW HAMPSHIRE NATIONAL GUARD.

	Commissioned Officers.	Enlisted Men.	Aggregate.
Commander-in-Chief and Staff.....	11	.....	11
Brigade Commander and Staff.....	8	4	12

FIRST REGIMENT. — HEADQUARTERS, MANCHESTER.

Field and Staff.....	9	5	14
Band			
Co. A, Dover.	3	40	43
Co. B, Manchester.....	3	50	53
Co. C, Goffstown....	3	33	36
Co. D, Dover.....	3	42	45
Co. E, Manchester.....	3	46	49
Co. F, Derry.....	3	40	43
Co. H, Manchester.....	3	37	40
Co. K, Manchester.....	3	48	51
Strength of First Regiment.	33	341	374

SECOND REGIMENT. — HEADQUARTERS, NASHUA.

	Commissioned Officers.	Enlisted Men.	Aggregate.
Field and Staff.....	9	5	14
Band		21	21
Co. C, Nashua	3	29	32
Co. D, Newport	3	41	44
Co. E, Rochester.....	3	34	37
Co. F, Farmington.	3	37	40
Co. G, Keene.....	3	48	51
Co. H, Keene.....	3	38	41
Co. I, Nashua.....	3	45	48
Co. K, Hillsborough.....	3	34	37
Strength of Second Regiment.....	33	332	365

THIRD REGIMENT. — HEADQUARTERS, CONCORD.

Field and Staff.....	9	3	12
Band		23	23
Co. A, New London.....	3	44	47
Co. C, Concord.....	2	42	44
Co. D, Pittsfield.....	3	39	42
Co. E, Plymouth.....	3	31	34
Co. F, Bristol	3	39	42
Co. G, Lebanon.....	3	39	42
Co. H, Franklin Falls.....	3	44	47
Co. K, Wolfeborough.....	2	36	38
Strength of Third Regiment.....	31	340	371

CAVALRY.

	Commissioned Officers.	Enlisted Men.	Aggregate.
Co. A, Peterborough	3	55	58
Strength of Cavalry	3	55	58

ARTILLERY.

First Battery, Manchester	4	68	72
Strength of Artillery	4	68	72

RECAPITULATION.

Commander-in-Chief and Staff	11	.....	11
Brigade Commander and Staff	8	4	12
Infantry	97	1,013	1,110
Cavalry	3	55	58
Artillery	4	68	72
Total	123	1,140	1,263

REGISTER

OF THE

NEW HAMPSHIRE NATIONAL GUARD.

HIS EXCELLENCY CHARLES H. SAWYER, *Governor and Commander-in-Chief.*

INAUGURATED JUNE 2, 1887.

GENERAL STAFF.

NAME.	Rank.	Residence.	Date of Commission.
Augustus D. Ayling, Adj. Gen..	Maj. Gen.....	Concord	July 15, 1879
Elbert Wheeler, Insp. Gen.*....	Brig. Gen....	Nashua.....	June 29, 1887
Howard L. Porter, Q. M. Gen....	Brig. Gen....	Concord	June 29, 1887
Albert S. Twitchell, Com. Gen..	Brig. Gen....	Gorham.....	June 29, 1887
Josiah G. Bellows, J. A. Gen....	Brig. Gen....	Walpole	June 29, 1887
Arthur L. Emerson, Surg. Gen..	Brig. Gen....	Chester.....	June 29, 1887
Oscar G. Barron, Aid-de-Camp.	Colonel	Carroll.....	June 29, 1887
William E. Spalding, “	Colonel	Nashua	June 29, 1887
Christopher H. Wells, “	Colonel	Somersworth..	June 29, 1887
Seth M. Richards, “	Colonel	Newport.....	June 29, 1887

* Reappointment.

FIRST BRIGADE.

NAME.	Rank.	Residence.	Date of Commission.
Joab N. Patterson	Brig. Gen....	Concord.....	May 15, 1889
George W. Gould, Assistant Adjutant-General.....	Lieut. Col....	Winchester....	May 28, 1884
Albert N. Dow, Assistant Inspector-General.....	Major.....	Exeter.....	May 20, 1889
Harry B. Cilley, Inspector Rifle Practice	Major.....	Concord	May 20, 1889
Irving A. Watson, Medical Director.....	Lieut. Col....	Concord	May 20, 1889
Frank W. Rollins, Judge Advocate.....	Major	Concord	May 20, 1889
George R. Leavitt, Quarterm'r.	Captain.....	Laconia.....	May 20, 1889
John Gannon, Jr., Commissary.	Captain.....	Manchester....	May 16, 1887
Daniel H. Gienty, Aid-de-Camp.	Captain.....	Concord	April 15, 1886
Frank L. Kimball, Aid-de-Camp	Captain.....	Nashua.....	May 28, 1889

FIRST REGIMENT.

FIELD AND STAFF.

George M. L. Lane.....	Colonel	Manchester....	Dec. 21, 1886
Richard M. Scammon.....	Lieut. Col....	Exeter.....	Dec. 21, 1886
Patrick A. Devine	Major	Manchester....	Mar. 11, 1886
Alfred F. Eaton, Adjutant.....	First Lieut..	Manchester....	July 19, 1887
William G. Mason, Quarterm'r.	First Lieut..	Manchester....	May 11, 1885
Hervey M. Bennett, Paymaster	Captain.....	Manchester....	Aug. 12, 1884
William M. Parsons, Surgeon...	Major	Manchester....	Mar. 17, 1884
James Sullivan, Asst. Surgeon.	Captain.....	Manchester ...	Mar. 17, 1884
Luther F. McKinney, Chaplain.	Captain.....	Manchester....	Jan. 10, 1887

COMPANY A.

George H. Demeritt.....	Captain.	Dover.....	Sept. 1, 1881
Charles S. Clifford.....	First Lieut ..	Dover.....	May 16, 1887
Frank E. Rollins.....	Second Lieut	Dover.....	May 16, 1887

COMPANY B.

NAME.	Rank.	Residence.	Date of Commission.
Daniel F. Shea.....	Captain.....	Manchester....	Mar. 11, 1886
John F. Reardon.....	First Lieut...	Manchester....	May 28, 1888
William Sullivan	Second Lieut	Manchester....	May 28, 1888

COMPANY C.

Leslie S. Bidwell.....	Captain.....	Goffstown.....	Mar. 16, 1885
George E. Whitney.....	First Lieut...	Goffstown	Dec. 21, 1886
Frank A. Whipple.....	Second Lieut	Goffstown	Dec. 21, 1886

COMPANY D.

Walter W. Scott.....	Captain.....	Dover.....	May 29, 1889
Charles F. Sawyer	Second Lieut	Dover.....	May 29, 1889

COMPANY E.

Bartlett N. Wilson.....	Captain.....	Manchester....	April 13, 1887
Frank W. Tebbetts.....	First Lieut ..	Manchester....	April 13, 1887
John B. Rogers.....	Second Lieut	Manchester....	May 18, 1888

COMPANY F.

Miner G. Frye.....	Captain.....	Derry Depot...	Dec. 15, 1887
John E. Webster.....	First Lieut ..	Derry Depot...	Nov. 8, 1884
Leighton H. McIntire	Second Lieut	Derry Depot...	Dec. 15, 1887

COMPANY H.

Michael Labréche.....	Captain.....	Manchester....	Oct. 11, 1887
Jérémie H. Soly.....	First Lieut...	Manchester....	Sept. 22, 1888
Frank H. Lussier.....	Second Lieut	Manchester....	May 18, 1888

COMPANY K.

NAME.	Rank.	Residence.	Date of Commission.
Patrick H. O'Malley.....	Captain.....	Manchester...	Dec. 30, 1886
Thomas H. Kendrigan.....	First Lieut...	Manchester...	Aug. 13, 1887
John Fitzmaurice.....	Second Lieut	Manchester...	Oct. 17, 1887

SECOND REGIMENT.

FIELD AND STAFF.

Elbridge J. Copp.....	Colonel.....	Nashua	June 25, 1884
Albert W. Metcalf.....	Lieut. Col...	Keene.....	May 15, 1885
Jason E. Tolles.....	Major.....	Nashua	May 15, 1885
Charles E. Faxon, Adjutant....	First Lieut...	Nashua	April 14, 1887
George P. Kimball, Quarterm'r.	First Lieut...	Nashua	Aug. 1, 1884
Charles A. Roby, Paymaster....	Captain.....	Nashua	Nov. 3, 1887
George W. Flagg, Surgeon	Major.....	Keene.....	May 10, 1886
William H. Nute, Asst. Surgeon.	Captain.....	Farmington...	May 10, 1886
George W. Grover, Chaplain....	Captain.....	Nashua	July 1, 1884

COMPANY C.

Hiram S. Stevens.....	Captain.....	Nashua	Mar. 19, 1888
Arthur D. Farley	First Lieut ..	Nashua.....	Mar. 19, 1888
William H. Livingston.....	Second Lieut	Nashua.	May 18, 1888

COMPANY D.

Ira Stowell.....	Captain.....	Newport.....	Jan. 5, 1888
George A. Scribner.....	First Lieut...	Newport.....	April 20, 1888
William H. Nourse.....	Second Lieut	Newport.....	April 20, 1888

COMPANY E.

NAME.	Rank.	Residence.	Date of Commission.
Isaac D. Piercy.....	Captain.....	Rochester.....	July 25, 1884
Fred L. Chesley.....	First Lieut..	Rochester.....	July 15, 1884
G. Ira Berry.....	Second Lieut	Rochester.....	Nov. 15, 1887

COMPANY F.

Charles H. Pitman.....	Captain.....	Farmington ...	Feb. 25, 1887
Albert Garland.....	First Lieut ..	Farmington ...	Jan. 10, 1888
Hosea L. Bickford.....	Second Lieut	Farmington....	May 18, 1888

COMPANY G.

Francis O. Nims.....	Captain.....	Keene.....	July 24, 1884
Charles W. Starkey.....	First Lieut...	Keene.....	Feb. 26, 1889
Edwin O. Upham	Second Lieut	Keene.....	Feb. 26, 1889

COMPANY H.

Jerry P. Wellman.....	Captain.....	Keene.....	Aug. 1, 1885
Frank Chapman	First Lieut...	Keene.....	Aug. 1, 1885
Elbridge A. Shaw.....	Second Lieut	Keene.....	Aug. 1, 1885

COMPANY I.

Edwin H. Parmenter.....	Captain	Nashua.....	Sept. 1, 1884
Willis H. Goodspeed.....	First Lieut ..	Nashua.....	May 23, 1887
William R. Seaman.....	Second Lieut	Nashua.....	May 23, 1887

COMPANY K.

Loren E. Nichols.....	Captain.....	Hillsboro' Br..	Feb. 28, 1889
John W. Craine.....	First Lieut ..	Hillsboro' Br..	Feb. 28, 1889
Homer A. White	Second Lieut	Hillsboro' Br..	Feb. 28, 1889

THIRD REGIMENT.

FIELD AND STAFF.

NAME.	Rank.	Residence.	Date of Commission.
True Sanborn, Jr.....	Colonel.....	Chichester.....	May 15, 1889
Nathan H. Randlett.....	Lieut. Col...	Lebanon.....	May 15, 1889
William A. Messer.....	Major.....	New London ..	May 15, 1889
Clarence B. Randlett, Adjutant.	First Lieut..	Concord.....	May 22, 1889
Arthur M. Dodge, Quarterm'r..	First Lieut..	Tilton.....	May 22, 1889
William Tutherly, Paymaster..	Captain.....	Claremont....	May 22, 1889
Frank T. Moffett, Surgeon	Major.....	Littleton.....	May 22, 1889
Robert Burns, Asst. Surgeon..	Captain.....	Plymouth.....	May 22, 1889
James K. Ewer, Chaplain.....	Captain.....	Concord	May 22, 1889

COMPANY A.

Willard Reed.....	Captain.....	New London..	May 15, 1889
Baxter Gay.....	First Lieut..	New London..	May 15, 1889
Frank P. Messer	Second Lieut	New London ..	May 15, 1889

COMPANY C.

Robert H. Rolfe... ..	Captain.....	Concord	Jan. 22, 1889
William C. Trenoweth.....	First Lieut..	Concord	Jan. 22, 1889
Thomas P. Davis	Second Lieut	Concord	May 9, 1889

COMPANY D.

Forest F. Hill	Captain.....	Pittsfield	July 3, 1888
Walter Langmaid	First Lieut..	Chichester....	Oct. 5, 1885
Delta H. Merrill.....	Second Lieut	Pittsfield	July 3, 1888

COMPANY E.

George H. Colby.....	Captain.....	Plymouth.....	April 22, 1885
Erastus B. Dearborn	First Lieut..	Plymouth.....	May 6, 1886
Henry S. Arris.....	Second Lieut	Plymouth.....	May 6, 1886

COMPANY F.

NAME.	Rank.	Residence.	Date of Commission.
Charles W. Coolidge.....	Captain.....	Bristol.....	April 12, 1889
Orrin B. Ray.....	First Lieut..	Bristol.....	April 12, 1889
Wesley Dicey.....	Second Lieut	Bristol.....	April 12, 1889

COMPANY G.

Eugene S. Downs.....	Captain.....	Lebanon.....	Oct. 10, 1888
George A. Freeto	First Lieut..	Lebanon.....	Jan. 23, 1889
Benjamin M. Reynolds.....	Second Lieut	Lebanon.....	Jan. 23, 1889

COMPANY H.

George N. Cheever.....	Captain.	Franklin Falls.	July 1, 1879
Amos S. Ripley.....	First Lieut..	Franklin Falls.	May 1, 1886
Hollis K. Smith.....	Second Lieut	Franklin Falls.	May 1, 1886

COMPANY K.

Charles L. Horne	Captain.....	Wolfeborough.	May 17, 1889
Dana W. Horne	First Lieut..	Wolfeborough.	May 17, 1889
Herbert E. Davis.....	Second Lieut	Wolfeborough.	May 17, 1889

CAVALRY.

COMPANY A.

Ervin H. Smith.....	Captain.....	Peterborough.	May 3, 1883
Charles B. Davis.....	First Lieut..	Peterborough.	Jan. 25, 1886
Charles H. Dutton	Second Lieut	Peterborough.	April 28, 1886

ARTILLERY.

FIRST BATTERY.

NAME.	Rank.	Residence.	Date of Commission.
Samuel S. Piper.....	Captain.....	Manchester....	May 1, 1876
Edward H. Currier.....	First Lieut ..	Manchester....	April 6, 1882
Silas R. Wallace.....	First Lieut ..	Manchester....	Mar. 27, 1886
John A. Barker	Second Lieut	Manchester....	Mar. 27, 1886

RESIGNATIONS AND DISCHARGES OF COMMISSIONED OFFICERS.

BRIGADE.

NAME.	Rank and Organization.	Date of Commission.	Date of Discharge.	Remarks.
Daniel M. White	Brig. Com....	May 15, 1884	May 15, 1889	Exp i r a - tion of term of service.
George Cook	Lieu t. C o l. and M. D...	May 28, 1884	May 20, 1889	Resigned.
Daniel B. Donovan	Maj. and J.A.	May 22, 1885	Dec. 24, 1888	Resigned.
Louis C. Merrill.....	Captain and Q. M.....	July 22, 1884	Feb. 18, 1889	Resigned.
Wm. H. Cheever.....	Maj o r and I. R. P.....	Dec. 11, 1885	Nov. 13, 1888	Resigned.
Frank W. Russell	Major and A. I. G.	Dec. 11, 1885	May 20, 1889	Resigned.
Daniel B. Donovan.....	Major and I. R. P.....	Dec. 24, 1888	May 20, 1889	Resigned.

FIRST REGIMENT.

James H. McDuffee.....	2d Lieut. Co. D	Mar. 1, 1888	May 17, 1889	Resigned.
Bion I. Browne	Captain Co. D.	Mar. 1, 1888	May 29, 1889	Resigned.

SECOND REGIMENT.

NAME.	Rank and Organization.	Date of Commission	Date of Discharge.	Remarks.
Edward P. Kimball.....	1st Lieut. Co. G	July 24, 1884	Feb. 3, 1889	Resigned.
Henry P. Whitaker	Captain Co. K	Feb. 24, 1886	Feb. 1, 1889	Resigned.
George F. Russell.....	2d Lieut. Co. K	Sept. 3, 1886	Sept. 14, 1888	Resigned.

THIRD REGIMENT.

Daniel C. Roberts.....	Chaplain.....	Aug. 3, 1882	May 6, 1889	Resigned.
Fred S. Hall..... ..	1st Lieut. and Adjutant....	April 19, 1886	May 22, 1889	Resigned.
Edward H. Dixon.....	Captain Co. C.	Feb. 25, 1881	Jan. 22, 1889	Resigned.
David M. Calley.....	Captain Co. F.	April 14, 1888	Feb. 12, 1889	Resigned.
Charles H. Clough	Captain Co. G.	July 23, 1883	Aug. 28, 1888	Resigned.
Joseph Lewando.....	Captain Co. K	Oct. 17, 1885	Feb. 12, 1889	Resigned.

COMMISSIONS ISSUED.

BRIGADE.

NAME.	Rank and Organization.	Date of Commission
Joab N. Patterson.....	Brigade Commander.....	May 15, 1889
Daniel B. Donovan.....	Major and I. R. P.....	Dec 24, 1888
Irving A. Watson	Lieut. Col. and Med. Dir.. .	May 20, 1889
Albert N. Dow	Major and Asst. Insp. Gen.	May 20, 1889
Frank W. Rollins.....	Major and Judge Advocate	May 20, 1889
Harry B. Cilley.....	Major and I. R. P.....	May 20, 1889
George R. Leavitt.....	Captain and Brig. Q. M....	May 20, 1889
Frank L. Kimball.....	Captain and A. D. C.....	May 28, 1889

FIRST REGIMENT.

Jerémié H. Soley.....	First Lieutenant Co. H.....	Sept. 22, 1888
Walter W. Scott.....	Captain Co. D.....	May 29, 1889
Charles F. Sawyer.....	Second Lieutenant Co. D...	May 29, 1889

SECOND REGIMENT.

Charles W. Starkey.....	First Lieutenant Co. G.....	Feb. 26, 1889
Edwin O. Upham	Second Lieutenant Co. G...	Feb. 26, 1889
Loren E. Nichols.....	Captain Co. K.....	Feb. 28, 1889
John W. Craine.....	First Lieutenant Co. K.....	Feb. 28, 1889
John W. Craine.....	Second Lieutenant Co. K...	Oct. 31, 1888
Homer A. White.....	Second Lieutenant Co. K...	Feb. 28, 1889

THIRD REGIMENT.

NAME.	Rank and Organization.	Date of Commission
True Sanborn, Jr.....	Colonel.....	May 15, 1889
Nathan H. Randlett.....	Lieutenant-Colonel.....	May 15, 1889
William A. Messer.....	Major.....	May 15, 1889
Clarence B. Randlett.....	First Lieut. and Adjutant..	May 22, 1889
Arthur M. Dodge.....	First Lieutenant and Q. M..	May 22, 1889
Frank T. Moffett.....	Major and Surgeon.....	May 22, 1889
Robert Burns.....	Captain and Asst. Surgeon.	May 22, 1889
James K. Ewer.....	Captain and Chaplain.....	May 22, 1889
William Tutherly.....	Captain and Paymaster....	May 22, 1889
Willard Reed.....	Captain Co. A.....	May 15, 1889
Baxter Gay.....	First Lieutenant Co. A....	May 15, 1889
Frank P. Messer.....	Second Lieutenant Co. A...	May 15, 1889
Robert H. Rolfe.....	Captain Co. C.....	Jan. 22, 1889
William C. Trenoweth.....	First Lieutenant Co. C.....	Jan. 22, 1889
Thomas P. Davis.....	Second Lieutenant Co. C...	May 9, 1889
Forest F. Hill.....	Captain Co. D.....	July 3, 1888
Delta H. Morrill.....	Second Lieutenant Co. D...	July 3, 1888
Charles W. Coolidge.....	Captain Co. F.....	Apr. 12, 1889
Orrin B. Ray.....	First Lieutenant Co. F.....	Apr. 12, 1889
Wesley Dicey.....	Second Lieutenant Co. F...	Apr. 12, 1889
Eugene S. Downs.....	Captain Co. G.....	Oct. 10, 1888
George A. Freeto.....	First Lieutenant Co. G.....	Jan. 23, 1889
Benjamin M. Reynolds.....	Second Lieutenant Co. G...	Jan. 23, 1889
Charles L. Horne.....	Captain Co. K.....	May 17, 1889
Dana W. Horne.....	First Lieutenant Co. K.....	May 17, 1889
Herbert E. Davis.....	Second Lieutenant Co. K..	May 17, 1889

ENLISTED MEN DROPPED FROM THE ROLLS AS DESERTERS.

FIRST REGIMENT.

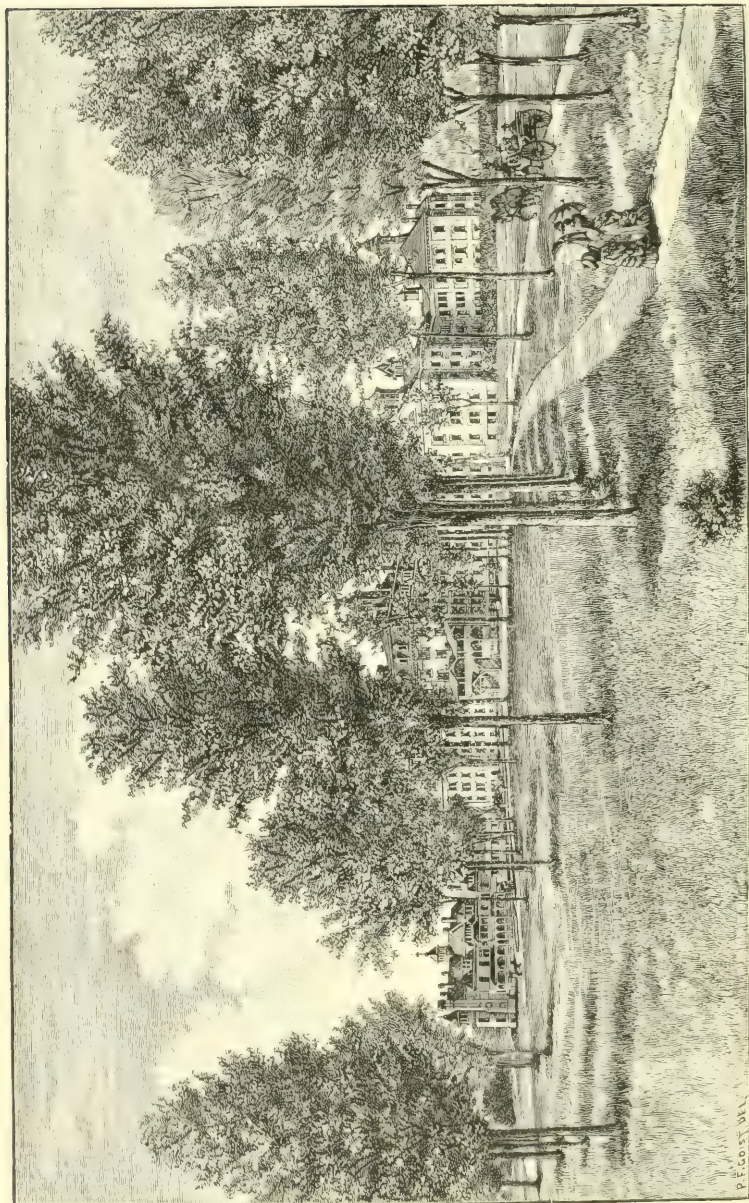
Private Charles D. Walker, Co. A.

SECOND REGIMENT.

Private George E. Barnes.....Co. K | Private Chester E. Farnum....Co. K

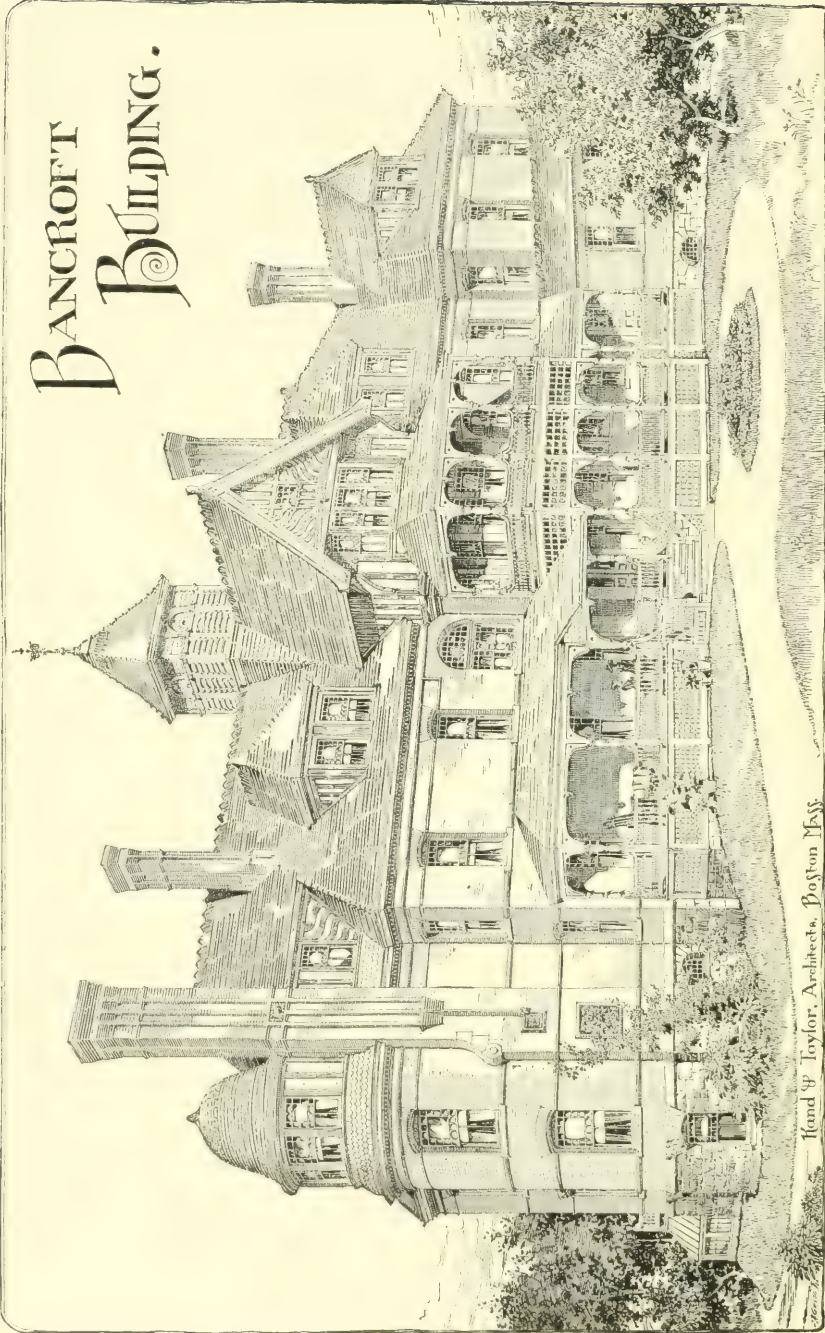
THIRD REGIMENT.

Private John A. Frost, Co. H.



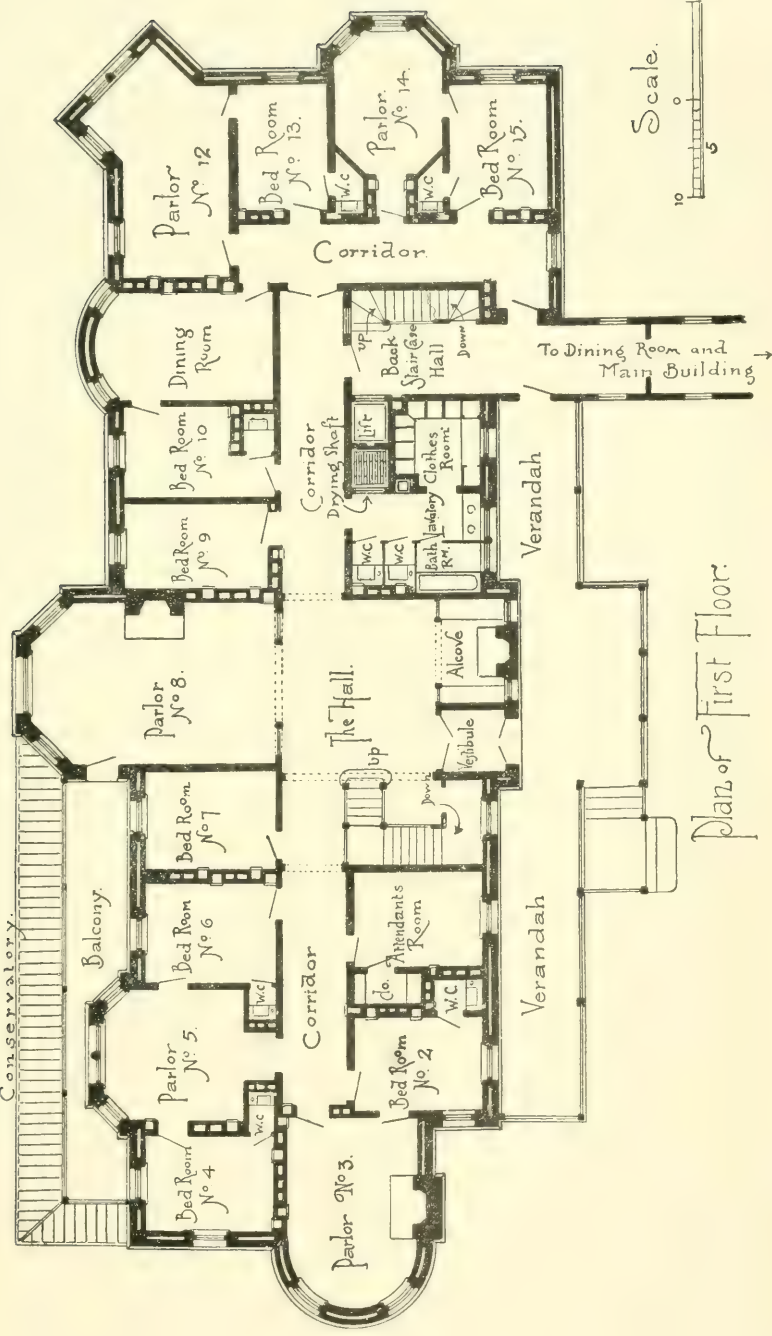
NEW HAMPSHIRE ASYLUM FOR THE INSANE.

BANCROFT BUILDING.



Hand & Taylor, Architects, Boston Mass.

Conservatory.



Scale.



Plan of First Floor.

ANNUAL REPORTS

OF THE

BOARD OF VISITORS, TRUSTEES, SUPERINTENDENT,
TREASURER, AND FINANCIAL AGENT

OF THE

NEW HAMPSHIRE

ASYLUM FOR THE INSANE

TO THE

GOVERNOR AND COUNCIL,

JUNE, 1889.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1889.

REPORT OF THE BOARD OF VISITORS.

STATE OF NEW HAMPSHIRE.

EXECUTIVE DEPARTMENT.

CONCORD, April 25, 1889.

The Governor and Council, president of the Senate, and speaker of the House, as required by law, having visited the Asylum for the Insane, inspected its several departments, and examined into the condition of the patients, are satisfied that the design of the institution is carried into full effect by the present management, and that its affairs are in excellent condition and well conducted.

CHARLES H. SAWYER,
Governor.

NATH'L H. CLARK,
JOHN C. LINEHAN,
CHARLES WILLIAMS,
JOHN B. SMITH,
A. S. BATCHELLOR,
Councilors.

FRANK D. CURRIER,
President of the Senate.

ALVIN BURLEIGH,
Speaker of the House of Representatives.

OFFICERS OF THE INSTITUTION.

BOARD OF VISITORS.

(EX OFFICIO.)

HIS EXCELLENCY CHARLES H. SAWYER.

HON. NATHANIEL H. CLARK,

HON. JOHN C. LINEHAN,

HON. CHARLES WILLIAMS,

HON. JOHN B. SMITH,

HON. ALBERT S. BATCHELLOR,

} *Councilors.*

HON. FRANK D. CURRIER, *President of the Senate.*

HON. ALVIN BURLEIGH, *Speaker of the House of Representatives.*

BOARD OF TRUSTEES.

GEORGE B. TWITCHELL, M. D., Keene, *President.*

JOSEPH B. WALKER, Concord, *Secretary.*

EDWARD SPALDING, M. D., Nashua.

EMERY J. RANDALL, Somersworth.

WM. H. H. MASON, M. D., Moultonborough.

ELLERY A. HIBBARD, Laconia.

WILLIAM G. PERRY, M. D., Exeter.

REV. J. E. BARRY, Concord.

WATERMAN SMITH, Manchester.

DEXTER RICHARDS, Newport.

C. P. FROST, M. D., Hanover.

REV. F. D. AYER, Concord.

RESIDENT OFFICERS.

C. P. BANCROFT, M. D., *Superintendent.*
 EDWARD FRENCH, M. D., *First Assistant Physician.*
 A. C. NASON, M. D., *Second Assistant Physician.*
 MR. J. H. CARR, *Clerk and Steward.*
 MRS. FANNY B. CARR, *Housekeeper.*

VISITING COMMITTEE FOR 1889-90.

FIRST HALF OF MONTHS.

April, 1889.	WHOLE BOARD OF TRUSTEES.
May,	J. B. WALKER.
June,	DR. W. H. H. MASON.
July,	DEXTER RICHARDS.
Aug.,	DR. WM. G. PERRY.
Sept.,	DR. W. H. H. MASON.
Oct.,	REV. J. E. BARRY.
Nov.,	DR. GEO. B. TWITCHELL.
Dec.,	E. A. HIBBARD.
Jan., 1890.	DR. EDWARD SPALDING.
Feb.,	REV. F. D. AYER.
March,	DR. GEO. B. TWITCHELL.

SECOND HALF OF MONTHS.

April, 1889.	WHOLE BOARD OF TRUSTEES.
May,	REV. J. E. BARRY.
June,	E. A. HIBBARD.
July,	DR. C. P. FROST.
Aug.,	J. B. WALKER.
Sept.,	WATERMAN SMITH.
Oct.,	DR. EDWARD SPALDING.
Nov.,	WATERMAN SMITH.

Dec., 1889.	REV. F. D. AYER.
Jan., 1890.	DR. C. P. FROST.
Feb.,	DR. WM. G. PERRY.
March,	DEXTER RICHARDS.

REPORT OF THE TRUSTEES.

To His Excellency the Governor, and to the Honorable Council:

The Trustees of the New Hampshire Asylum for the Insane present this, their

FORTY-SEVENTH ANNUAL REPORT.

It is our privilege to announce to your honorable board the continued prosperity of the asylum. Its general operations, since our last report, are clearly set forth in the accompanying report of the superintendent.

For statements in detail of the present financial condition of the asylum, you are respectfully referred to the accompanying reports of the treasurer and of the financial agent. From the latter, it appears that the debt incurred by the asylum in the erection of the Bancroft building has been reduced three thousand dollars since our last report, leaving but five thousand dollars still outstanding. This debt was originally twenty thousand dollars, and has thus far been paid from the income of permanent funds of the asylum received from benevolent persons desirous of aiding the institution in its great work of ameliorating the condition of the insane. How far it is wise to devote any part of the income of such funds to the construction of buildings rather than to a more direct application of it to the benefit of needy patients, we commend to your careful consideration.

During the last year, the Adams and Chandler funds have been raised to their respective established amounts of three thousand and thirty thousand dollars.

The returns of the farm during the past year have been satisfactory, and we herewith transmit a schedule of its various products. It may be seen at a glance that these are all of them of first importance to the asylum. That they have been secured at a less cost than that at which they might have been purchased, there is no doubt. The farm has long been a valuable adjunct to the asylum, not only for the large amount of supplies which it furnishes, but for the extensive open area which it secures to its patients.

For an account of the very important renovation and enlargement of the Fisk wing the past year, you are respectfully referred to the above-mentioned report of the superintendent. This wing is a part of the original structure, and has been in constant use for over forty-six years. The renovation and alterations which it has lately received were imperatively demanded, and will be worth to the patients very many times their cost.

The appropriation of eleven thousand dollars, made by the Legislature in 1887, for warming the asylum, has been expended in strict accordance with the conditions of the act providing for the same. As was foreseen, it proved insufficient in amount, and the deficit has been paid from the asylum treasury, so that all expenses incurred in the work have been met.

During the last three years the warming apparatus of the asylum has been receiving important alterations and renewals. The time taken may seem long, but it will be remembered, upon a moment's reflection, that this work could be prosecuted only during the warm season of a year, or between the months of June and September, when the house required no artificial warming.

This work has embraced the introduction of four new

steam-boilers, each sixty inches in diameter and seventeen feet and four inches long, in place of the five old ones removed, some of which, after very long use, had become unserviceable. As the asylum was to be warmed henceforth with low-pressure steam, the return of the water of condensation to the boilers by gravity required a lowering of the boiler-house floor, as well as a large part of the foundation walls of the building, about seven feet. The substitution of enlarged distribution pipes throughout the house also became necessary, as well as the introduction of many new radiators. In a word, the work has been a renewal of the warming system of the whole house, with the exception of the Bancroft and Kent buildings, which severally possess efficient means of their own.

Never before has the institution been so efficiently warmed and ventilated as it now is. A faithful history of the successive efforts made, from time to time, in the past, to ventilate and warm its various halls and rooms, constantly increasing in number, would present facts surprising to persons acquainted only with the improved means in present use.

As at first constructed, the ventilating flues of the asylum were made of brick, roughly plastered, having a sectional area of four by four inches, and terminating at the attic floors. They possessed no outlets to the out-of-doors air, but, so far as they may have acted at all, they simply discharged their contents into the several attics to which they led. They ere long became clogged with spider-webs and dust, and nearly useless. But some years ago these were all enlarged to nine times their original capacities and led to sufficient openings in the roofs of the buildings which they were constructed to serve, and have ever since done efficient work.

Upon the opening of the asylum, in 1842, three wood furnaces were provided to heat the several buildings,

which at that time comprised the center and the north and south wings. These were simply large stoves placed in chambers of brick, from which warm-air flues led to the various halls.

When the asylum was enlarged by the erection of the Chandler wing, in 1849, the same system was extended to this addition, but when, five years afterwards, the new building for excited patients was erected, and shortly after the Rumford wing, the old furnaces were discarded and steam-heating was introduced. But little was known at the time of this method of warming, yet the trustees availed themselves of the best knowledge they could obtain, and under the superintendence of Mr. Morton, of the South Newmarket Machine Company, three boilers were introduced to the basement of the present laundry building, from which steam was conveyed to pipe radiators sixty feet long, placed in air-chambers of adequate size under the several wings of the house.

This method was continued until its inefficiency could no longer be endured, when the radiators were exchanged for a greatly increased number of smaller ones, of sizes required by single flues, and each inclosed in a separate chamber of its own. This change at once rendered each warming-flue reliable, and the control of the temperature of all parts of the house became easy. It was subsequently found that cast-iron nipple-covered radiators were more efficient, and to these the pipe radiators ere long gave way. The latter, of improved forms, are still used, being efficient and at the same time economical.

Up to about 1869, the fuel used was wood; but as the requisite quantity of this, of the character desired, became difficult of seasonable attainment, its use was discontinued and coal was substituted, some fifteen hundred tons of which are now annually consumed. The various embarrassments overcome and the improvements made

in warming the asylum during the last forty-six years would doubtless be interesting to persons charged with a similar work, but the subject does not possess sufficient general interest to warrant a detailed record of them in this report. We venture, however, here and now to express the belief that the present heating apparatus of the institution is fully abreast of the times, and will need but little modification for some years to come.

The improvement of the southwest section of the farm, which was in progress at the date of our last report, has been nearly completed. The retaining-walls upon the sides of Bow brook, along its course through this portion of our grounds, are now finished, and the land adjacent has been underdrained and partially graded. By the close of the present season it is hoped that the entire undertaking will have been completed, and a worthless bog and adjoining gravel bank converted into a beautiful tract of fertile land; and when, at no distant day it is to be hoped, the avenue which now belts the farm from the gateway on Pleasant street to this section of it shall have been extended to a junction with that encircling the pond, all the main carriage roads originally contemplated will have been secured, and afford a continuous drive of exceeding beauty within our own boundaries.

The number of patients, which is gradually increasing from year to year, is to-day three hundred and thirty-eight. The present accommodations will doubtless become inadequate at a time not far distant, and an important enlargement of the existing asylum buildings will then demand the consideration of the Legislature. We say *important enlargement*, as such will be required upon both the male and female sides of the house. But for the accommodations afforded at the several county farms, at which some four or five hundred insane persons may at this time be found, this enlargement would have been necessary years ago.

The treatment of insanity in hospitals has made great advances since our asylum was erected. The usages and methods at that time in vogue seem crude indeed, as they are examined from the standpoint and in the light of the present day. Fifty years ago the knowledge of mental disease was limited, and the appliances for its alleviation were correspondingly imperfect. Restraint was far more general than now, and asylum life less agreeable and beneficial. The present effort to introduce to our wards as much as possible of the personal freedom and occupations of home life has shown its salutary effects upon large numbers of our patients, and contributed greatly to render their residence at the institution pleasant as well as profitable.

Respectfully submitted.

GEORGE B. TWITCHELL,
C. P. FROST,
F. D. AYER,
JOHN E. BARRY,
W. G. PERRY,
DEXTER RICHARDS,
W. H. H. MASON,
E. A. HIBBARD,
WATERMAN SMITH,
EDWARD SPALDING,
J. B. WALKER,

Trustees.

CONCORD, N. H., April 18, 1889.

REPORT OF THE SUPERINTENDENT.

The Superintendent respectfully submits the forty-seventh annual report of the asylum for the year ending March 31, 1889.

The year commenced with three hundred and thirty-nine patients, — one hundred and fifty-nine men, and one hundred and eighty women.

The number admitted during the year was one hundred and fifty-five, — eighty-nine men and sixty-six women.

The number of different persons under treatment during the year was four hundred and eighty-one, — two hundred and forty-four men, and two hundred and thirty-seven women.

The number discharged during the year was one hundred and fifty-eight, — eighty-five men and seventy-three women.

Of the whole number of patients under treatment, ninety-one were known to have the suicidal impulse. It is again very gratifying to report that although several attempts have been made, no one has been successful.

The daily average through the year has been 336.86, of which number 161.06 were men and 175.80 were women. These figures represent the highest daily averages in the history of the asylum.

The percentage of recoveries, based upon the number of cases admitted, is 25.16. This percentage excludes all cases of recovery from alcoholism or opium habit, of

which class there have been several; and the effort has been made to strictly limit the number mentioned to those in whom real recovery has occurred. As usual, however, the preponderance of chronic and incurable cases is very noticeable.

During the year there have been thirty-six deaths, giving a mortality percentage of 7.4. Of these, twenty-eight, or 5.8, had such organic diseases of the brain or other organs as to preclude recovery. Of the eight acute cases which died, a majority were in such a state of extreme exhaustion at the time of their commitment as to render recovery extremely doubtful. The general health of the house has been excellent. There has not been any acute contagious or infectious disease during the year.

IMPROVEMENTS IN STEAM-HEATING.

The past year has witnessed the completion of one of the most radical improvements undertaken by your board during the last six years. I refer to the gradual change from high to low pressure steam-heating. This alteration has necessarily consumed much time, as the removal of nearly all the old piping and many radiators, as well as the substitution of larger pipes and a different style of radiator, became necessary.

The change was begun in 1885 in the Kent building by the placing of a large boiler in its basement and connecting it with the radiators already in place in that building.

In 1886, all the old heating apparatus in the Peaslee building, the Chandler wing, and the center building was removed, and the larger pipes and necessary radiators put in their stead. In 1877, the state appropriation of eleven thousand dollars was granted, and the alterations were extended throughout the Fisk and Rumford wings, and the large pipes placed in the underground conduits and connected with the old boilers.

During the past year the most important and delicate part of the work has been completed. The basement floor and foundation of the boiler-house were lowered seven feet, four new steel boilers put in place of the old boilers, and the final connections made with the piping of the house. These boilers were made by Scannell & Wholey of Lowell, Mass., and are connected with the high-pressure service for power and low-pressure service for heating, so that they are all interchangeable.

The piping has been so arranged that all the exhaust steam from both engine and pumps is utilized for heating water for the general use of the house, the feed water for the high-pressure boiler, and then is diverted into the general low-pressure circulation. In this way every particle of heat possible has been abstracted from the coal and utilized. That an immense saving in the consumption and utilization of coal has been effected, I have no doubt. At no time during the winter have more than three boilers been necessary. A larger number of individual rooms has been warmed, a more uniform heat attained, and a more perfect ventilation secured, than ever before, and this, too, without any especial strain upon the apparatus.

We now possess a steam heating and power plant which will meet the wants of the asylum for many years to come. Undoubtedly, at no very distant date in the future, it will be for the best interest of the institution to be lighted with the incandescent electric light and to maintain its own plant. The erection of these new boilers will render this possible.

The lowering of the foundation walls of the boiler-house necessitated certain alterations in grade on the west and north side of that building, the removal of the old and erection of a new ice-house, and a change in the position and height of the fence about the Kent building.

These alterations have been finished, and have added much to the appearance of this entire locality.

GENERAL AND PERMANENT IMPROVEMENTS.

At the semi-annual meeting of the trustees in 1887, it was voted to make such improvements and alterations in the Fisk wing as the interests of the asylum required. It was deemed advisable to sacrifice two rooms in each ward and utilize the space thus obtained for the establishment of a bay-window and sitting-room, and on the attic floor a large, sunny infirmary.

The work was begun April 1, 1888, and at the close of the present asylum year has been nearly all completed, with the exception of the laying of the hard-pine floors and painting of the walls in two of the wards. While these improvements were in progress, only one ward was vacated at a time.

The alterations have been quite thorough and have included the entire renovation of wards 1, 2, and 3, which have not been subjected to any extensive changes since their erection in 1842. New lathing and plastering, new ward floors, the addition of new ventilation and heat flues, and entirely new plumbing and repainting have been included in the alterations mentioned. The plumbing has been most thoroughly done, and every portion of the system is exposed and accessible, from the trap outside the wing to the vent-pipe on the roof. The floors of the washrooms and water-closets are tile, and are water-tight. The flushing of the closets is profuse, and is produced by seat action.

The most gratifying result obtained from the erection of the bay-window is the introduction of sunlight into all three of the wards, as well as the large and pleasant infirmary on the attic floor. The entire Fisk wing is now very bright and cheerful, and the introduction of

an open fireplace in each ward renders the place exceedingly attractive and homelike.

A TRAINING SCHOOL FOR NURSES.

At the annual meeting of the trustees in 1887, it was voted that a Training School for Nurses should be established at this asylum. Through the kindness of the trustees of the Boston City Hospital, Miss A. A. Brown, our supervisoress, was permitted to take a six months' course at that institution in order that she might become better acquainted with hospital methods and the training-school system. Last October the school was opened at the asylum with a class of thirteen.

A room has been set apart for the use of the school, and furnished with charts and whatever may be necessary for the prosecution of the work. The instruction includes a lecture by one of the medical staff and a recitation every week. The instruction is as simple, direct, and practical as possible. The recitation text-books used are the manuals on nursing, which have met with most general acceptance in the hospital training schools of the country.

The introduction of hospital training schools into asylums for the insane is now meeting with general acceptance, and the time is not far distant when every well-appointed hospital or asylum for the insane will have its training school. All the arguments which have prevailed in the past for the establishing of training schools for general hospitals are of equal force in their application to asylums for the insane. No disease calls for greater intelligence and more careful training on the part of the nurse than insanity.

There is another reason why asylums should have training schools. In every such institution there is a large amount of clinical material that can be utilized in

instructing young women in the profession of general nursing. An asylum like our own ought, therefore, by reason of such instruction, not only to give intelligent care to the unfortunate patients committed to its charge, it should also serve the general community by training nurses who will be competent to care for the nervous and insane outside of the asylum as well as cases of general sickness. In this way our asylum may become of great service to the general practitioners and the public, who can look to it for trained nurses in time of sickness. It will necessarily be quite a while before the number of graduates will be sufficiently large to admit of our furnishing many nurses to the general profession, but it is to be earnestly hoped that the training school will enable the asylum not only to secure a more intelligent service for itself, but to assist the community and general profession in the way indicated.

The course of instruction embraces two years, and includes not only a practical training in the nature and treatment of nervous and mental diseases, but the nursing and care of general disease. The fundamental principles of good nursing are taught, such as the care of the sickroom, its ventilation, the making of beds, the use of disinfectants, the management of fevers, prevention and care of bed-sores, administration of medicine, the diet in disease, the registering and significance of the pulse and respiration in health and disease, surgical dressings, and all the duties required of the trained nurse.

It is gratifying to report that the school has thus far been successful, and that there is reason for hoping that it will continue to prosper in the future. Systematic training in any kind of occupation is productive of good results. The course of training established at this asylum will tend to broaden and liberalize the minds of those who enter upon it; it will dignify the work of the attendant and elevate it to the rank of a profession;

finally, it is to be hoped that systematic training will attract many into the service, which will thus be made more interesting as well as remunerative.

The various methods for procuring mental occupation and diversion that have proved successful in the past have been continued during the last year. Of these, the workshop, the summer picnics at Lake Penacook, and the monthly social parties during the winter have proved most valuable. In a general way, those agencies which tend to draw the mind into natural and healthy channels, and to diminish the distinctions between hospital life and the ordinary life of the world outside such an institution are most successful. It is in this way that the various industries of the shop have proved so serviceable. The contribution of articles to the bi-weekly paper, as well as the printing of the same; the printing of the last report and much other miscellaneous matter; the making of brooms and upholstering, have employed many hands that would have otherwise remained idle, and have furnished a stimulus to many minds that would otherwise have had little diversion.

The experience of each year testifies to the fact that a large class of patients need comparatively little restraint, and that, with certain restrictions, the ordinary social diversions of the world at large are of great value in a hospital for mental diseases. This is well illustrated by the success which attends the monthly social parties held in the chapel during the winter months, the New Year's party, the masquerade ball, which has now become an annual feature among our entertainments, and above all, by the continued enjoyment and stimulation afforded by the weekly picnics to Lake Penacook during the summer.

THE FARM.

An unusually wet season and the advent of an early frost in the fall reduced somewhat the quantity and

quality of the farm products. The appended report shows their quantity and approximate market value.

The work of grading the border avenue, which has already become an excellent walk for patients, and the reclaiming of the low ground has been continued as rapidly as time would admit. The brook wall, after nearly eight years from the date of its commencement, has at last been completed, and admirably serves the purpose of confining the somewhat uncertain waters of this little stream, within their proper channel.

ACKNOWLEDGMENTS.

To all those in the service of the institution who have, by their work and example, contributed so greatly to the year's work, the superintendent wishes to express his appreciation.

The proprietors of the following newspapers have gratuitously supplied the asylum with copies of their issues: "New Hampshire People and Patriot," "Daily Monitor," "Independent Statesman," "Manchester Union," "Nashua Gazette," and "Morning Star."

The kindly assistance and co-operation of the trustees in the various enterprises and work of the year are deeply appreciated by the superintendent.

C. P. BANCROFT,
Superintendent.

N. H. ASYLUM, March 31, 1889.

STATISTICAL TABLES.

TABLE I.

	Men.	Women.	Total.
Patients in hospital April 1, 1888.....	159	180	339
Cases admitted during the year.....	89	66	155
Discharged within the year.....	85	73	158
Viz., as recovered from first attack.....	9	12	21
as recovered from other than first.....	8	12	20
as much improved.....	10	10	20
as improved.....	11	7	18
as not improved.....	17	17	34
Alcoholism.....	5	1	6
Eloped.....	3	..	3
Deaths.....	22	14	36
Patients remaining April 1, 1889.....	163	174	337
Number of different persons within the year....	244	237	481
" " " admitted.....	88	64	152
" " " recovered.....	17	22	39
Daily average number of patients.....	161.06	175.80	336.86

TABLE II.

Showing Result in all under Treatment during the Year.

	Of those in the asylum at begin- ning of year.			Of those admit- ted during the year.			Total of both classes.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.
Discharged, recovered.....	7	8	15	10	16	26	17	24	41
" much improved.....	7	9	16	3	1	4	10	10	20
" improved.....	3	4	7	2	3	11	11	7	18
" not improved..	8	14	22	9	3	12	17	17	34
Alcoholism.....	1	..	1	4	1	5	5	1	6
Opium habit.....	..	..	..	..	..	..	..	..	..
Chloral habit.....	..	..	..	..	..	..	..	..	..
Died.....	10	9	19	12	5	17	22	14	36
Remaining, improved.....	31	25	56	22	15	37	53	40	93
" not improved..	87	113	200	23	21	44	110	134	244

TABLE III.

Admissions and Discharges from the beginning of the Asylum.

	Men.	Women.	Total.
Admitted.....	2,743	2,582	5,325
Discharged.....	2,512	2,340	4,852
" recovered.....	958	925	1,883
" improved.....	613	618	1,231
" not improved.....	526	458	984
Died.....	473	400	873

TABLE IV.

Showing Number and Character of those recovered during the Year.

	Cases in which re- currence is not established.			Cases in which recurrence is established.			Total of both classes.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.
From first attack.....	9	11	20	..	..	..	9	11	20
" second ".....	2	3	5	..	..	..	2	3	5
" third ".....	..	..	..	2	3	5	2	3	5
" fourth ".....	..	..	..	1	..	1	1	..	1
" fifth ".....	..	..	..	..	2	2	..	2	2
" sixth ".....	..	..	..	1	3	4	1	3	4
" eighth ".....	..	..	..	1	..	1	1	..	1
" ninth ".....	..	..	..	1	..	1	1	..	1
" nineteenth attack.....	..	..	..	..	1	1	..	1	1
" twentieth attack.....	..	..	..	..	1	1	..	1	1
	11	14	25	6	10	16	17	24	41

TABLE V.

Showing Duration of Insanity before Admission in those recovered during the Year.

	Men.	Women.	Total.
Less than one month.....	9	11	20
One to three months.....	2	6	8
Three to four months.....	..	4	4
Six to twelve months.....	2	1	3
More than one year.....	3	2	5
Unknown.....	1	..	1
	17	24	41

TABLE VI.

Showing Number of Admissions to this Asylum in those admitted this Year.

	Men.	Women.	Total.
Admitted the first time	64	52	116
“ second “	15	8	23
“ third “	2	1	3
“ fourth “	1	..	1
“ fifth “ .....	..	2	2
“ sixth “	3	1	4
“ seventh “	2	1	3
“ eighth “	2	..	2
“ twentieth time .....	..	1	1
	89	66	155

TABLE VII.

Showing Number of the Attack in those admitted during the Year.

	Men.	Women.	Total.
First	57	42	99
Second	15	11	26
Third .....	..	6	6
Fourth	3	1	4
Fifth	2	1	3
Sixth	2	2	4
Seventh	2	..	2
Eighth	1	1	2
Ninth	1	..	1
Twentieth .....	..	1	1
Unknown	6	1	7
	89	66	155

TABLE VIII.

Showing Duration of Insanity in those admitted during the Year.

	Men.	Women.	Total.
Less than one month.....	11	11	22
One to three months.....	13	18	31
Three to six ".....	11	8	19
Six to nine ".....	9	4	13
Nine to twelve months.....	1	..	1
Twelve to eighteen months..	4	4	8
Eighteen months to two years..	4	3	7
Two to three years.....	6	3	9
Three to four ".....	9	5	14
Five to ten ".....	6	5	11
Ten to fifteen ".....	4	1	5
Fifteen to twenty years.....	1	1	2
Twenty to thirty ".....	..	..	..
Thirty to forty ".....	..	1	1
Forty to fifty ".....	..	1	1
Alcoholism.....	5	1	6
Opium habit.....	1	..	1
Chloral habit.....	1	..	1
Unknown.....	3	..	3
	89	66	155

TABLE IX.

Showing the Ages of those admitted during the Year.

	Men.	Women.	Total.
10 to 12 years.....	1	..	1
15 to 20 years.....	3	..	3
20 to 25 years.....	7	5	12
25 to 30 years.....	6	10	16
30 to 35 years.....	8	11	19
35 to 40 years.....	7	5	12
40 to 45 years.....	8	9	17
45 to 50 years.....	14	6	20
50 to 60 years.....	20	11	31
60 to 70 years.....	8	7	15
70 to 80 years.....	4	1	5
80 to 90 years.....	3	1	4
	89	66	155

TABLE X.

Showing Form of Disease in Patients admitted during the Year.

	Men.	Women.	Total.
Acute mania.....	4	9	13
Sub-acute mania	13	3	16
Chronic mania.....	8	9	17
Recurrent mania.....	10	10	20
Circulatory mania.....	1	1	1
Acute melancholia.....	18	14	32
Sub-acute melancholia.....	2	2	4
Chronic melancholia.....	2	4	6
Recurrent melancholia.....	..	3	3
Chronic dementia.....	4	3	7
Senile dementia.....	5	..	5
Epileptic dementia.....	1	..	1
Congenital imbecility.....	2	..	2
Imbecility.....	..	1	1
Epilepsy.....	1	..	1
Paresis.....	3	1	4
Hypochondriasis.....	1	..	1
Structural disease of brain.....	5	3	8
Typhomania.....	2	1	3
Hystero-mania.....	..	1	1
Alcoholism.....	6	1	7
Opium habit.....	1	..	1
Chloral habit.....	1	..	1
	89	66	155

TABLE XI.

Showing Complications of those admitted during the Year.

	Men.	Women.	Total.
Hereditary tendency.....	14	14	28
Intemperance.....	10	2	12
Congenital deficiency.....	2	2	4
Hernia.....	3	1	4
Uterine diseases.....	..	3	3
Neuralgia.....	2	1	3
Syphilis.....	1	2	3
Heart disease.....	2	..	2
Insolation.....	1	..	1
Phthisis.....	..	2	2
Rheumatism.....	..	2	2
Caries of vertebrae.....	1	..	1
Caries of femur.....	..	1	1
Chorea.....	..	1	1
Goitre.....	..	1	1
Bright's disease.....	..	1	1
Suicidal tendencies.....	29	23	52
Homicidal tendencies.....	13	8	21
	78	64	142

TABLE XII.

Showing Number with Suicidal Propensity under Treatment during the Year.

	Men.	Women.	Total.
Of those in the hospital at beginning of the year.....	18	31	49
Of those admitted during the year.....	29	23	52
	47	54	101

TABLE XIII.

Showing Civil Condition of those admitted during the Year.

	Men.	Women.	Total.
Single.....	28	24	52
Married.....	50	36	86
Widows.....	..	6	6
Widowers.....	10	..	10
Divorced.....	1	..	1
	89	66	155

TABLE XIV.

Showing Occupation of those admitted during the Year.

	Men.	Women.	Total.
Household.....	..	48	48
Farmers.....	22	..	22
Mill operatives.....	7	4	11
Laborers.....	11	..	11
Masons.....	5	..	5
Agents.....	3	..	3
Shoe operatives.....	5	1	6
Carpenters.....	3	..	3
Lawyers.....	2	..	2
Clerks.....	2	..	2
Physicians.....	2	..	2
Machinists.....	4	..	4
Merchants.....	2	..	2
Tailor.....	1	..	1
Tailoress.....	..	1	1
Compositor.....	..	1	1
Dairyman.....	1	..	1
Piano-tuner.....	1	..	1
Book-keeper.....	1	..	1
Saloon-keeper.....	..	1	1
Music teacher.....	1	1	2
Nurses.....	..	3	3
Clergyman.....	1	..	1
School teachers.....	..	2	2
Wheelwright.....	1	..	1
Sister of Mercy.....	..	1	1
Painter.....	1	..	1
Plumber.....	1	..	1
Hostler.....	1	..	1
Milliner.....	..	1	1
Photographer.....	1	..	1
Jeweler.....	1	..	1
None.....	9	2	11
	89	66	155

TABLE XV.

Showing Nativity of those admitted during the Year.

	Men.	Women.	Total.
New Hampshire.....	60	32	92
Massachusetts.....	3	7	10
Vermont.....	7	4	11
Maine.....	2	3	5
Connecticut.....	2	..	2
New York.....	3	2	5
Rhode Island.....	2	..	2
Wisconsin.....	..	2	2
Iowa.....	..	2	2
Canada.....	3	3	6
Ireland.....	5	10	15
England.....	1	1	2
Germany.....	1	..	1
	89	66	155

TABLE XVI.

Showing Residence of those admitted during the Year.

	Men.	Women.	Total.
Hillsborough county.....	22	21	43
Merrimack ".....	13	11	24
Cheshire ".....	9	7	16
Strafford ".....	9	5	14
Rockingham ".....	8	5	13
Grafton ".....	6	6	12
Carroll ".....	4	2	6
Sullivan ".....	4	..	4
Belknap ".....	3	1	4
Coos ".....	4	..	4
Vermont ".....	2	2	4
Massachusetts ".....	1	2	3
Connecticut.....	1	..	1
Maine.....	..	1	1
Colorado.....	..	2	2
Canada.....	3	1	4
	89	66	155

TABLE XVII.

Showing by what Authority committed.

	Men.	Women.	Total.
By friends.....	61	52	113
By towns.....	14	5	19
By counties.....	7	8	15
By courts.....	6	1	7
By order of the Governor.....	1	..	1
	89	66	155

TABLE XVIII.

Showing by whom supported.

	Men.	Women.	Total.
By self or friends.....	50	47	97
By towns.....	16	6	22
By county.....	12	13	25
By State.....	3	..	3
	89	66	155

TABLE XIX.

Deaths during the Year and their Causes.

	Men.	Women.	Total.
Exhaustion from acute mania.....	3	1	4
“ “ chronic mania.....	1	..	1
“ “ acute melancholia.....	2	2	4
“ “ chronic melancholia.....	..	1	1
“ “ chronic dementia.....	4	1	5
“ “ senile dementia....	4	..	4
Structural disease of the brain.....	1	1	2
Paresis.....	1	..	1
Exhaustion from senile dementia, complicated with scald- ing.....	..	..	..
Delirium tremens of traumatic origin.....	1	..	1
Phthisis pulmonalis.....	..	4	4
Chronic catarrhal pneumonia with pleurisy.....	1	..	1
Fatty degeneration of heart.....	1	..	1
Peritonitis.....	1	..	1
Heart failure ..	..	2	2
Chronic Bright's disease.....	..	1	1
Uremia.....	1	..	1
Old age.....	..	1	1
	22	14	36

TABLE XX.

Showing Ages at Time of Death.

	Men.	Women.	Total.
Between 20 and 30 years.....	3	1	4
“ 30 “ 40 “.....	3	4	7
“ 40 “ 50 “.....	4	3	7
“ 50 “ 60 “.....	7	2	9
“ 60 “ 70 “.....	1	2	3
“ 70 “ 80 “.....	3	..	3
Over 80 years.....	1	2	3
	22	14	36

TABLE XXI.

Showing Ages of those remaining at the end of the Year.

	Men.	Women.	Total.
Under 20 years of age.....	1	..	1
Between 20 and 30 years.....	21	10	31
" 30 " 40 ".....	33	33	66
" 40 " 50 ".....	42	49	91
" 50 " 60 ".....	31	29	60
" 60 " 70 ".....	20	28	48
" 70 " 80 ".....	12	15	27
Over 80 years.....	3	10	13
	163	174	337

TABLE XXII.

Showing Duration of Disease in those remaining.

	Men.	Women.	Total.
Less than 1 month.....	2	..	2
" " 2 months.....	1	1	2
From 3 to six ".....	4	3	7
" 6 to 12 ".....	8	11	19
" 12 to 18 ".....	3	5	8
" 18 months to 2 years.....	4	5	9
" 2 years to 3 years.....	7	5	12
" 3 to 5 years.....	18	17	35
" 5 to 10 ".....	37	37	74
" 10 to 15 years.....	22	27	49
" 15 to 20 ".....	10	14	24
" 20 to 25 ".....	15	23	28
" 25 to 30 ".....	5	5	10
" 30 to 40 ".....	4	13	17
Over 40 years.....	3	7	10
Alcoholism.....	2	..	2
Opium habit.....	2	..	2
Chloral habit.....	1	..	1
Unknown.....	15	11	26
	163	174	337

TABLE XXIII.

Prospects of Recovery in those Patients admitted during the Year.

	Men.	Women.	Total.
Curable (apparently).....	37	36	73
Incurable (apparently).....	45	29	74
Alcoholism.....	5	1	6
Chloral habit.....	1	..	1
Opium habit.....	1	..	1
	89	66	155

TABLE XXIV.

Prospects of those remaining at the end of the Year.

	Men.	Women.	Total.
Curable (apparently).....	25	22	47
Incurable (apparently).....	133	152	285
Alcoholism.....	2	..	2
Opium habit.....	2	..	2
Chloral habit.....	1	..	1
	163	174	337

TABLE XXV.

Statistics of Admissions, Discharges, and Deaths, from the Opening of the Asylum.

Year.	Admitted.	Discharged and died.	Recovered.	Improved.	Unimproved.	Died.	Whole number under treatment.	Remaining at end of hospital year.	Daily averages of the hospital.		
									Men.	Women.	Total.
1843	76	29	12	10	6	1	76	47	..	..	..
1844	104	81	37	20	19	5	151	70	..	..	..
1845	88	82	37	17	22	6	158	76	..	..	..
1846	98	76	26	23	16	11	174	98	..	..	..
1847	89	87	38	17	23	9	187	100	..	..	..
1848	92	83	29	20	26	8	192	109	..	..	..
1849	81	76	36	15	11	14	190	114	..	..	..
1850	103	90	45	18	20	7	217	127	..	..	..
1851	88	98	45	25	16	12	215	117	..	..	..
1852	107	106	66	13	16	11	224	118	..	..	..
1853	132	107	65	25	11	8	250	143	..	..	..
1854	141	123	63	24	22	14	284	161	..	..	..
1855	95	91	59	20	9	12	246	155	..	..	..
1856	85	96	63	13	7	10	250	154	..	..	..
1857	97	81	47	15	7	12	251	170	..	..	..
1858	76	77	34	20	5	18	246	169	..	..	..
1859	98	85	31	22	18	14	267	182	..	..	..
1860	85	83	38	16	12	17	267	184	94.0	88.0	182.0
1861	106	94	34	34	10	16	290	196	90.0	100.0	190.0
1862	86	94	42	32	7	13	282	188	88.7	105.7	191.4
1863	101	85	30	32	17	16	289	204	87.4	105.9	193.3
1864	105	92	36	16	17	23	309	217	99.4	107.4	206.8
1865	107	102	42	23	14	22	324	223	102.5	115.9	218.4
1866	104	91	26	28	16	21	327	236	106.3	122.6	228.9
1867	117	107	39	24	27	17	353	246	119.3	122.6	241.9
1868	118	129	51	39	18	21	364	235	118.5	121.27	239.77
1869	95	93	42	20	9	22	330	237	113.7	129.9	243.6
1870	130	114	37	34	20	23	367	253	123.1	125.9	249.0
1871	135	163	65	37	29	32	388	225	119.8	123.44	242.82
1872	152	123	55	31	16	21	377	254	109.36	125.19	234.55
1873	194	172	61	51	27	33	448	273	127.8	139.5	267.3
1874	140	137	42	44	27	22	416	281	140.4	127.5	267.9
1875	120	140	53	37	30	20	401	261	136.6	138.1	274.7
1876	140	122	35	34	27	26	401	279	121.4	139.1	260.5
1877	119	118	36	38	27	17	398	280	124.2	150.3	274.5
1878	114	118	35	36	30	17	394	276	128.9	143.8	272.7
1879	73	81	27	23	8	23	349	268	126.3	143.8	270.1
1880	111	94	28	27	22	17	379	285	127.4	147.6	275.0
1881	134	117	33	39	23	22	419	302	133.3	158.6	291.9
1882	104	121	38	26	27	30	406	285	131.0	159.1	290.1
1883	133	123	41	23	34	25	418	295	120.3	164.1	284.4
1884	141	127	18	41	44	24	436	309	124.3	169.5	293.8
1885	138	122	30	20	36	36	447	322	128.3	181.9	310.2
1886	138	143	43	30	34	34	400	317	139.82	182.37	322.19
1887	143	138	32	28	28	33	460	328	137.22	184.12	321.34
1888	137	125	33	26	35	28	465	339	150.49	183.59	334.08
1889	155	158	41	38	34	36	494	337	161.06	175.80	336.86

TREASURER'S REPORT.

To the Trustees of the New Hampshire Asylum for the Insane :

The following statement of receipts and expenditures, from April 1, 1888, to March 31, 1889, inclusive, is respectfully submitted.

RECEIPTS.

Balance on hand April 1, 1888	\$5,744.42
Cash received for board of private patients	52,525.59
received for board of town patients	6,217.26
received for board of county patients	10,997.39
received of financial agent for aid to patients	10,000.00
received of state treasurer for aid to indigent patients	6,000.00
received of state treasurer for library (2 years)	200.00
received of state treasurer for board of criminal insane	3,072.00
received for stock and articles sold	3,527.59
	<hr/>
	\$98,284.25

EXPENDITURES.

Cash paid for meats	\$8,823.26
flour	1,582.45
butter and cheese	3,479.62
sugar and molasses	2,514.62
fish	1,955.12
coffee and tea	1,408.29
potatoes, fruit, and vegetables	615.30
all other table supplies	5,677.10
houses furnishing goods	3,850.51
articles furnished and charged in patients' accounts	3,229.77
for heating, power, and light- ing	17,812.57
medical and surgical supplies	814.30
services of all forms in care of patients and household	22,960.14
ordinary repairs of buildings	5,795.88
permanent improvements	5,571.45
to supplement state appropri- ation for boilers and heat- ing apparatus, and boiler- house changes	3,266.56
provender	1,935.25
stock, farming implements, improvements of farm and grounds	1,479.76
farm and outdoor labor	2,138.30
library, printing and sta- tionery	511.53
postage, express, and tele- graph	621.95
traveling expenses of trustees	209.50

Cash paid for public exercises, including	
Sunday service and all public means to interest and	
occupy patients . . .	\$714.67
miscellaneous items . . .	434.19
	<hr/>
Whole amount expended	\$97,402.09
Balance of income carried to new account	882.16
	<hr/>
	\$98,284.25

J. P. BANCROFT, *Treasurer.*

CONCORD, April 1, 1889.

REPORT OF COMMITTEE ON HEATING APPARATUS.

As instructed in the legislative act making the appropriation of eleven thousand dollars for the work, the committee completed specifications and advertised for bids for boilers. At the time and place specified the bids were opened in the presence of the parties bidding, and it appeared the Messrs. Scannell & Wholey, of Lowell, boilers-makers, had presented the lowest bid, and to them the committee awarded the contract, both for the boilers and the castings required for the setting. Their work was completed in the time specified, and done to the satisfaction of the committee.

The advertisement for bids for the stone and brick masonry and the setting of the boilers was responded to by only one party, Lyman R. Fellows & Son, and to them the contract was given. They performed the difficult work of lowering the foundations of the boiler-house in a skillful manner, without the smallest crack in the superstructure, and the setting of the new boilers to the satisfaction of the committee. The piping and fitting, work made necessary by change from high to low pressure heating, which had already been advanced as far as practicable before the setting of the boilers, and the connection of the same with these was completed by Messrs. Walworth & Co., and with perfect working success.

We can say that the past winter's use of the whole apparatus has proved every part of the work to have

been thoroughly and faithfully done, as well as attest the great value to the asylum of the changes made.

We append a statement of the receipts and payments connected with this work.

RECEIPTS.

From state treasurer	\$11,000.00
From treasurer of New Hampshire Asylum, transferred from ordinary account to supplement state appropriation	3,266.56
	<hr/>
	\$14,266.56

EXPENDITURES.

Paid Scannell & Wholey for four new steel boilers and all required castings	\$4,222.63
L. R. Fellows & Son for stone, brick and mason work	1,975.94
Walworth Manufacturing Co. for pipe, fittings, radiators, and mechanics' labor	6,299.79
Samuel Holt for bricks	666.05
for pipe covering	121.78
for advertising	52.25
for lumber	15.40
for concreting	159.15
for fire-brick	171.70
for stone	111.87
for excavations	230.00
for lime and cement	240.00
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	\$14,266.56

C. P. BANCROFT,
J. P. BANCROFT,
J. B. WALKER,
Committee.

AUDITOR'S REPORT.

To the Trustees of the New Hampshire Insane Asylum:

GENTLEMEN,—Being obliged to be absent from your annual meeting, I hereby submit my report.

I have carefully examined the accounts of the treasurer of the New Hampshire Asylum for the Insane for the fiscal year ending March 31, 1889, and find them clearly and accurately kept. I have also examined the accounts of the committee on new boilers, boiler-house, and heating apparatus, and find them correct, the money accounted for, and all bills sustained by proper vouchers.

J. E. BARRY, *Auditor.*

CONCORD, April 17, 1889.

TWENTY-THIRD ANNUAL REPORT OF THE FINANCIAL AGENT.

To the Trustees of the New Hampshire Asylum for the Insane:

The Financial Agent respectfully presents this report of his receipts and expenditures during the asylum financial year ending March 31, 1889, and the amounts and investments of the several funds in his custody.

RECEIPTS.

Cash on hand April 1, 1888	\$193.57
received for bonds matured	8,500.00
for interest and dividends	17,229.41
	\$25,922.98

EXPENDITURES.

Cash paid J. P. Bancroft, treasurer, appropriation to indigent patients, etc.	\$10,000.00
for insurance	773.00
bonds and stocks purchased	9,963.05
principal and interest due on loan	3,340.00

Cash paid for balance of annuity of Mrs. Sarah J. Wilson, salary of financial agent, rent of safe in Boston Safe Deposit and Trust Company's vaults, and sundry small expenses	\$883.00
Balance carried to new account	963.93
	<hr/>
	\$25,922.98

The following statement presents the amounts of the several permanent funds, at their par value, on the first day of April, 1889, and the manner of their investment:

ADAMS FUND.

(Gift of Isaac Adams, of Sandwich.)

10 shares Pittsburg, Fort Wayne & Chicago Railroad stock	\$1,000.00
2 United States bonds	600.00
1 Iowa Loan and Trust Company bond	1,000.00
4 shares Suffolk National Bank stock	400.00
	<hr/>
	\$3,000.00

BURROUGHS FUND.

(Legacy of Rev. Charles Burroughs, D. D., of Portsmouth.)

1 St. Louis County bond	\$1,000.00
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CHANDLER FUND.

(Legacy of Abiel Chandler, of Walpole.)

25 shares Portland, Saco & Portsmouth Railroad stock	\$2,500.00
37 shares Boston & Maine Railroad stock	3,700.00

100 shares Chicago, Rock Island & Pacific Railroad stock	\$10,000.00
10 shares Pittsburg, Fort Wayne & Chicago Railroad stock	1,000.00
10 shares Michigan Central Railroad stock	1,000.00
3 shares National State Bank stock	300.00
2 Chicago Water Loan bonds	2,000.00
3 Northern Pacific Railroad bonds	3,000.00
2 Michigan Central Railroad bonds	2,000.00
2 Chicago, Burlington & Quincy Railroad bonds	2,000.00
1 Chicago & Northwestern Railroad bond	1,000.00
1 New Hampshire registered bond	200.00
4 Iowa Loan and Trust Company bonds	1,300.00
	<hr/>
	\$30,000.00

CONANT FUND.

(Gift of John Conant, of Jaffrey.)

4 Iowa Loan and Trust Company bonds	\$4,000.00
1 New Hampshire Trust Company bond	500.00
1 Boston & Albany Railroad bond	1,000.00
3 shares Boston & Maine Railroad stock	300.00
2 shares Boston & Providence Railroad stock	200.00
	<hr/>
	\$6,000.00

FISK FUND.

(Legacy of Miss Catherine Fisk, of Keene.)

This fund is held in trust by the State in
accordance with an act of the Legislature,
approved August 4, 1887 \$26,378.43

KENT FUND.

(Legacy of Moody Kent, of Pittsfield.)

14	Maine bonds	\$7,000.00
8	Chicago (River Improvement) bonds	8,000.00
6	Cleveland bonds	6,000.00
17	Concord bonds	17,000.00
3	Minneapolis bonds	3,000.00
3	United States bonds	1,200.00
5	Eastern Railroad bonds	5,000.00
13	Michigan Central Railroad bonds	13,000.00
5	St. Joseph & Grand Island Railroad bonds	5,000.00
9	Burlington & Missouri River Railroad bonds	9,000.00
19	Chicago, Burlington & Quincy Railroad bonds	19,000.00
1	Chicago & Northwestern Railroad bond	1,000.00
7	Philadelphia, Wilmington & Baltimore Railroad bonds	7,000.00
10	Boston & Lowell Railroad bonds	10,000.00
4	Northern Pacific Railroad bonds	4,000.00
50	shares Pittsburg, Fort Wayne & Chi- cago Railroad stock	5,000.00
32	shares Northern Railroad stock	3,200.00
100	shares Michigan Central Railroad stock	10,000.00
2	shares Boston & Providence Railroad stock	200.00
50	shares Union Pacific Railroad stock	5,000.00
10	shares Chicago, Rock Island & Pacific Railroad stock	1,000.00
50	shares Fitchburg National Bank stock	5,000.00
47	shares State National Bank	4,700.00
7	shares Railroad National Bank	700.00
		<hr/>
		\$150,000.00

KIMBALL FUND.

(Legacy of Jacob Kimball, of Hampstead.)

The Kimball fund is held in trust by the State, in accordance with an act of the Legislature	\$6,753.49
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PENHALLOW FUND.

(Legacy of H. Louise Penhallow, of Portsmouth.)

1 Boston & Lowell Railroad bond . . .	\$1,000.00
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RICE FUND.

(Legacy of Arabella Rice, of Portsmouth.)

8 New Hampshire Trust Company bonds .	\$7,000.00
5 Oregon Short Line Railroad bonds . .	5,000.00
3 Northern Pacific Railroad bonds . .	3,000.00
1 United States registered bond . . .	5,000.00
	<hr/>
	\$20,000.00

RUMFORD FUND.

(Legacy of the Countess of Rumford, of Concord.)

5 Philadelphia, Wilmington & Baltimore Railroad bonds	\$5,000.00
5 Burlington & Missouri River Railroad bonds	5,000.00
30 shares Pittsburg, Fort Wayne & Chicago Railroad stock	3,000.00
20 shares Boston & Providence Railroad stock	2,000.00
	<hr/>
	\$15,000.00

SHERMAN FUND.

(Legacy of Mrs. Fannie Sherman, of Exeter.)

3 Iowa Loan and Trust Company bonds	\$3,000.00
1 St. Louis County bond	1,000.00
1 Boston & Lowell Railroad bond	1,000.00
	<hr/>
	\$5,000.00

SMITH FUND.

(Legacy of Betsey S. Smith, of New Ipswich.)

1 New Hampshire Trust Company bond	\$500.00
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SPALDING FUND.

(Legacy of Isaac Spalding, of Nashua.)

10 Cleveland bonds	\$10,000.00
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CONTINGENT FUND.

(This is not a permanent fund, but varies from year to year.)

Deposited in New Hampshire Savings	
Bank	\$315.26
4 shares Suffolk National Bank stock	400.00
	<hr/>
	\$715.26

The Chandler fund has been increased during the past year from twenty-nine thousand eight hundred dollars to thirty thousand dollars, its established amount. The Adams fund has also been increased during the same period from twenty-six hundred dollars to three thousand dollars, the amount fixed by the trustees, and the income

will henceforth be devoted to the purposes for which it has been established. The whole amount of the invested funds of the asylum at this date is two hundred and seventy-five thousand three hundred and forty-seven dollars and eighteen cents (\$275,347.18).

During the past year the debt incurred in the erection of the Bancroft building has been reduced in the sum of three thousand dollars, and stands now at five thousand dollars and interest from January 1, 1889.

Respectfully submitted.

J. B. WALKER,
Financial Agent.

CONCORD, N. H., April 1, 1889.

I have this day carefully examined the accounts of the financial agent of the New Hampshire Asylum for the Insane, and found them correct. I have examined the securities of the above institution held in the Boston Safe Deposit vaults, and find all accounted for.

J. E. BARRY, *Auditor.*

CONCORD, N. H. April 17, 1889.

*Products of the Farm and Garden at Market Value, for the
Year 1888.*

Beets for table	. . . 135 bushels,	@ \$0.50	\$67.50
Onions . . .	80 “	1.00	80.00
Peas . . .	54 “	1.00	54.00
Shell-beans . . .	43 “	.90	38.70
Parsnips . . .	51 “	.90	45.90
Tomatoes . . .	46 “	1.00	46.00
Cucumbers . . .	51 “	.80	40.80
Sweet corn . . .	35 “	1.00	35.00
Cabbage . . .	275 heads,	.06	16.50
Potatoes . . .	455 bushels,	.50	227.25
Hay . . .	115 tons,	18.00	2,070.00
Corn fodder . . .	30 “	7.00	210.00
Squash . . .	2 “	30.00	60.00
Beets for cows . . .	95 bushels,	.25	23.75
Radishes . . .	100 bunches,	.10	10.00
Lettuce . . .	110 dozen plants,	.40	44.00
Milk produced	75,828 $\frac{3}{4}$ quarts,	.05	3,791.43
Pork for use . . .	8,700 pounds,	.07 $\frac{1}{2}$	652.50
Pork sold . . .	6,969 “	.07 $\frac{1}{2}$	522.67
Pigs sold . . .	86	3.25	279.50
Shotes sold . . .	17	6.00	102.00
Calves sold . . .	25	2.05	51.25
Ice cut . . .	2,500 cakes,	.06	150.00
Rhubarb . . .	1,700 pounds,	.01	17.00
Asparagus . . .	236 bunches,	.10	23.60
Greens . . .	112 bushels,	.50	56.00
			<hr/>
			\$8,715.35

Articles made in Sewing-Room.

Sheets	435
Pillow-cases	383
Table-covers	67
Towels	616
Napkins	102
Mattress ticks	24
Pillow ticks	22
Bed-spreads	54
Comfortables	23
Curtains	156
Mats	36
Carpets	17
Hassocks	10
Horse-blankets	2
Dresses	127
Skirts	23
Basques	15
Night-dresses	3
Underwaists	12
Aprons	102
Bibs	12
Shirts	56
Pants	4
Coats	2

259 days of mending and miscellaneous work.

Made for general Use.

Marmalade	.	.	.	.	.	.	44 quarts.
Jelly	.	.	.	.	.	.	222 tumblers.
Fruit	.	.	.	.	.	.	443 quarts.
Sweet pickle	.	.	.	.	.	.	40 gallons.
Piccalilli	.	.	.	.	.	.	65 “
Mince meat	.	.	.	.	.	.	2 barrels.
Cucumber pickles	.	.	.	.	.	.	8 “

APPENDIX.

APPENDIX.

DIRECTIONS CONCERNING ADMISSION.

Those wishing the admission of a person to the asylum should make application to the superintendent previously to bringing the patient, unless the urgency of the case precludes it.

On application, full information as to terms, conditions, etc., and the necessary papers, will be furnished.

With the application a brief statement of the case should be given.

Some person should accompany the patient who can give a correct history of the case, if possible.

On no account should deception be practiced. The necessity of this step and the arrangements having first been settled, the patient should be honestly informed of what is to take place.

When possible, it is better that patients should arrive in day trains.

Patients should not bring valuable property when committed, and the asylum cannot become responsible for its keeping. Such articles should be left at home, unless the patient is fully responsible for their care.

The parties committing a patient, whether private individuals or town officers, are required to give a bond for the payment of expenses in the annexed form, signed by two responsible persons. The certificates of physicians should be filled and signed in all cases, except those committed by courts, and be written in the annexed form.

FORM OF BOND.

In consideration of the admission of _____, of the town of _____, in the county of _____, and State of _____, as a boarder at the New Hampshire Asylum for the Insane, in the city of Concord, we, of the town of _____, in the county of _____ and State of _____, and _____, of the town of _____, in the county of _____, and State of _____, jointly and severally promise and agree to and with said New Hampshire Asylum for the Insane, to pay its treasurer _____ dollars and _____ cents per week, or such other rate as may from time to time be established by said asylum therefor, while he shall remain at said asylum; together with such extra charge as may be occasioned by _____ requiring more than the ordinary care and attention; to pay any reasonable charge for actual damage done by _____ to buildings or furnishings; to assist in returning _____ to said asylum in case of elopement; to remove _____ from said asylum when required to do so by the superintendent; to pay funeral charges in case of death; and not to hold said asylum responsible for any money, jewelry, watches, or other valuables in _____ possession on admission, or given to _____ afterwards.

Payments to be made quarterly, and interest on all sums not paid at the end of each quarter.

Witness our hands, this _____ day of _____, 188 .

Attest:

Principal. [L. S.]

Surety. [L. S.]

NOTE. — Those committing patients are requested to notice the condition in regard to money, jewelry, etc.

FORM OF PETITION.

To be filled and signed by those desiring aid from the state appropriation, to be sent to the superintendent.

To His Excellency the Governor of the State of New Hampshire :

Respectfully represents that _____, an insane person, resident of _____ in this State, is without sufficient property or relatives legally liable for _____ support at the New Hampshire Asylum for the Insane. Wherefore the undersigned prays that the said _____ be aided by any funds appropriated by the State for the indigent insane.

Dated at _____, _____, 188 .

We, the undersigned, selectmen of _____, hereby certify that the representations in the above petition are in our belief true, and that said _____ is an indigent insane person.

N. B. — Please write whether the insane person has any property, and, if so, what amount, and any other facts you may think proper in relation to the ability of the insane person's near relatives.

NOTE. — The amount received by the applicant, it will be understood, is regulated entirely by the number who may apply for aid, and the comparative need of assistance.

ORDER FOR SUPPORT OF TOWN AND COUNTY PATIENTS.

We, _____, hereby order the committal of _____ to the New Hampshire Asylum for the Insane, at Concord, there to be supported at the expense of _____, in accordance with the statute, during _____ residence at said asylum.

_____ 188 .

NOTE. — To be signed by mayor, selectmen, or overseer of poor in case of town charge ; by county commissioner in case of county charge.

N. B. — Admission will be refused unless the requirements of the law are strictly complied with. See extract from the laws at the foot of this blank.

FORM OF CERTIFICATE OF INSANITY.

REQUIRED FOR ADMISSION OF PATIENTS.

After due inquiry and personal examination of _____, of _____, made within one week prior to date, we certify that _____ is insane, and a fit subject for treatment at the New Hampshire Asylum for the Insane.

_____, _____, M. D.

_____, _____, M. D.

_____, _____, 188 .

Having personal acquaintance with the signers of the above certificate, I certify that the signatures are genuine, and the signers reputable physicians.

_____, _____, 188 .

EXTRACT FROM THE LAWS OF NEW HAMPSHIRE.

SECTION 18. No person shall be committed to the asylum for the insane, except by the order of the court or the judge of probate, without the certificate of two reputable physicians that such person is insane, given after a personal examination made within one week of the committal; and such certificate shall be accompanied by a certificate from the judge of the supreme court, or court of probate, or mayor, or chairman of the selectmen, testifying to the signatures, and the respectability of the signers.

L A W S

RELATING TO THE NEW HAMPSHIRE ASYLUM FOR THE INSANE.

SECTION

1. Corporate name of the asylum.
2. Trustees, how appointed.
3. Tenure of office of the trustees.
4. Trustees to manage the affairs of the asylum.
5. To appoint officers, etc.
6. Trustees not to receive compensation.
7. To make regulations.
8. May hold property in trust ; no land taken for public use except by authority of the legislature.
9. Shall make report annually.
10. Board of visitors and their duties.
11. Secretary to cause report to be printed and distributed.
12. Persons dangerous to be at large may be committed to the asylum.
13. Insane persons confined in jail may be committed.
14. Insane paupers, how committed by town.
15. Insane county paupers may be committed by supreme court.

SECTION

16. Support of insane committed by court.
17. Parents, guardians, etc., may commit ; Concord not to be liable.
18. Certificate of two physicians required to commit.
19. When county shall support insane person.
20. Means of support failing, county liable after notice.
21. County may recover expense paid.
22. How discharged from asylum.
23. Trustees to visit asylum and hear statements of patients.
24. Superintendent to furnish stationery, and transmit letters to trustees.
25. Inquest on patients suddenly deceased.
26. Property of asylum exempt from taxation.
27. Governor may remove insane convicts from state-prison to asylum.
28. Annual appropriation for indigent insane and for library.

SECTION 1. The asylum for the insane, at Concord, is a corporation under the name of the New Hampshire Asylum for the Insane.

SECT. 2. The government of the asylum is vested in twelve trustees, appointed and commissioned by the governor, with advice of the council ; and all vacancies shall be filled in the same manner.

SECT. 3. The trustees are classified and commissioned in such manner that the offices of three trustees become vacant annually.

SECT. 4. The trustees shall take charge of the property and concerns of the asylum ; shall see that its affairs are conducted

properly ; may enter into and bind the asylum by such contracts relative to the support of patients and the affairs of the asylum as they may deem advantageous ; and may receive, appropriate, control, convey, or invest any property given to or owned by the asylum in such manner as they may think expedient.

SECT. 5. The trustees shall appoint a secretary, who shall keep a full and fair record of their proceedings ; a treasurer, who shall give bond for the faithful discharge of his duty ; and such physicians, officers, and assistants, with such salaries and allowances, as may from time to time be found necessary.

SECT. 6. No trustee shall receive any compensation for his services as trustee, but expenses necessarily incurred by him shall be paid by the asylum.

SECT. 7. The trustees may make such regulations for their own government, for the management of the asylum and all persons connected therewith, and for the admission and care of patients, and the same from time to time alter, as convenience may require.

SECT. 8. The trustees may take and hold in trust for the asylum any grant or devise of real estate, or any donation or bequest of personal property, and may apply the same, unless otherwise restricted, to lessen the expenses of the indigent insane. No land connected with the asylum shall be taken for a highway or other public use, except by the express authority of the legislature for that purpose first had and obtained.

SECT. 9. The trustees shall make to the governor and council, annually, a report, covering that of the superintendent to them, of the receipts and expenditures of the asylum, the number of patients admitted and discharged during each year, and all other matters connected with the general interests of the asylum, which shall be furnished to the secretary of state on or before the twentieth day of April.

SECT. 10. The governor and council, president of the Senate and speaker of the House shall constitute a board of visitors of the asylum ; shall visit and inspect the same when necessary ; examine into the condition of the patients, and the regulations and general management of the asylum ; see that the design thereof is carried into full effect ; and make to the legislature, biennially, a report, which shall be furnished to the secretary of state on or before the twentieth day of April next before the June session.

SECT. 11. The secretary shall cause fifteen hundred copies of the reports of the superintendent, trustees, and board of visitors of the asylum to be printed and distributed, — one copy each to the governor, members of the council, Senate, and House, and their officers; one copy to the clerk of each town; and the remaining copies to be placed in the hands of the board of visitors for distribution as they shall order and direct.

SECT. 12. If any insane person is in such condition as to render it dangerous that he should be at large, the judge of probate, upon petition by any person, and such notice to the selectmen of the town in which such insane person is, or to his guardian, or any other person, as he may order, — which petition may be filed, notice issued, and a hearing had in vacation or otherwise, — may commit such insane person to the asylum.

SECT. 13. If any insane person is confined in any jail, the supreme court may order him to be committed to the asylum, if they think it expedient.

SECT. 14. Any insane pauper, supported by any town, may be committed to the asylum by order of the overseers of the poor, and there supported at the expense of such town; and such expense may be recovered by such town of the county, town, or person chargeable with the support of such pauper, in the same manner as if he had been supported in and by the town.

SECT. 15. If the overseers neglect to make such order in relation to any insane county pauper, the supreme court, or any two judges thereof in vacation, may order such pauper to be committed to the asylum, and there supported at the expense of the county.

SECT. 16. Any insane person committed to the asylum by order of the supreme court, such person having been charged with an offence, the punishment whereof as prescribed by law is death or confinement in the state prison, shall, during his confinement in the asylum for the insane, be supported therein at the expense of the State. Any insane person committed to the asylum by any court, except as herein provided, or by any judge of probate, shall be supported by the county from which he was committed.

SECT. 17. The parent, guardian, or friends of any insane person may cause him to be committed to the asylum, with the consent of the trustees, and there supported on such terms as they may agree;

but the city of Concord shall not, in any case, be liable for the support or maintenance of any person committed to said asylum, except from said city.

SECT. 18. No person shall be committed to the asylum for the insane, except by the order of the court or the judge of probate, without the certificate of two reputable physicians that such person is insane, given after a personal examination made within one week of the committal; and such certificate shall be accompanied by a certificate from a judge of the supreme court, or court of probate, or mayor, or chairman of the selectmen, testifying to the genuineness of the signatures and the respectability of the signers.

SECT. 19. Any insane person committed to the asylum by his parent, guardian, or friends, who has no means of support, and no relatives of sufficient ability chargeable therewith, and no settlement in any town in this State, and who is in such condition that his discharge therefrom would be improper or unsafe, shall be supported by the county from which he was committed.

SECT. 20. When the means of support of any inmate of the asylum shall fail or be withdrawn, the superintendent of said asylum shall immediately cause notice in writing of that fact to be given to one of the county commissioners of the county from which such inmate was committed; and such county shall be liable and holden to pay to said asylum the expense of the support of such inmate from and after the service of such notice, and for ninety days next prior thereto.

SECT. 21. The county paying the expense of the support of any inmate shall be entitled to recover the amount so paid of any town, county, or individual by law liable for the support of such inmate.

SECT. 22. Any person committed to the asylum may be discharged by any three of the trustees, or by any justice of the supreme court, whenever the cause of commitment ceases, or a further residence at the asylum is, in their opinion, not necessary; but any person so discharged, who was under sentence of imprisonment at the time of his commitment, the period of which shall not have expired, shall be remanded to prison.

SECT. 23. Some one of the board of trustees of the asylum shall, without previous notice, visit that institution at least twice every month, and give suitable opportunity to every patient therein,

who may desire it, to make to him, in private, any statements such patient may wish to make; and whenever in his opinion it may be deemed proper, he shall call to his aid two other members of said board, who shall with him make a further examination of such patient, and of the statements by him made. If in their view the cause of commitment no longer exists, or a further residence at the asylum is not necessary, it shall be their duty to discharge such patient. Should they deem the treatment of any patient injudicious, they shall order such an immediate change of the same as to them seems proper; and, in case of failure to secure it, they shall at once summon a meeting of the whole board, whose duty it shall be to take such measures as the exigency of the case demands.

SECT. 24. It shall be the duty of the superintendent to furnish stationery to any patient who may desire it, and transmit any letter such patient may address to the board of trustees, to such member as said board shall have designated to receive such correspondence, and all such letters shall be promptly transmitted without inspection.

SECT. 25. In the event of sudden death of any patient in the asylum, a coroner's inquest shall be held, as provided for by law in other cases.

SECT. 26. The property of the asylum is exempted from taxation.

SECT. 27. The governor, with advice of the council, may remove to the asylum, to be there kept at the expense of the State, any person confined in the state prison who is insane.

SECT. 28. The sum of six thousand dollars is annually appropriated for the maintenance of indigent insane persons belonging to this State at the asylum, for such and so many as the governor may from time to time approve, not less than two thirds of which sum shall be applied annually to the support of private patients, exclusive of paupers maintained at public charge; and the sum of one hundred dollars is annually appropriated toward the support and increase of the library for the insane. — *General Laws of New Hampshire, pages 60-63.*

The following persons are also exempted from military duty;
 . . . the attendants upon the insane, employed in the asylum for the insane; . . . the officers and keepers of the asylum for the insane . . . — *General Laws of New Hampshire, page 229, section 4.*

BY-LAWS

OF THE NEW HAMPSHIRE ASYLUM FOR THE INSANE, ADOPTED
BY THE TRUSTEES AT A MEETING OF THEIR BOARD HOLDEN
OCTOBER 31, 1878.

SECTION 1. The annual meeting of the board of trustees shall be holden at the asylum, in Concord, on the Thursday next preceding the twentieth day of April of each year, and a semi-annual meeting shall be held on the second Thursday of November of each year.

SECT. 2. The trustees shall, at the annual meeting, elect by ballot a president, secretary, and treasurer, who shall hold their respective offices one year, and until others are chosen in their stead. At times, when either of said offices is vacant, it may be filled at a special meeting of the trustees duly called for that purpose.

SECT. 3. Notice of the annual and semi-annual meetings shall be given by the secretary to each trustee, either verbally or by mail, at least fourteen days previous to the day of meeting; and any meeting may be continued by adjournment, from time to time, until the business thereof shall be completed. In case of omission to notify the annual meeting, the same shall not be lost, but shall be considered as adjourned for the transaction of business, until the required notice thereof shall be given, which the secretary shall forthwith proceed to give.

SECT. 4. The president, or any four of the trustees, may call a special meeting of the trustees whenever in the opinion of either it may be deemed expedient so to do; and the same notice shall be given of a special as of the annual meeting, which notice shall state specifically the business to be brought before such meeting. In case

of a vacancy in the office of secretary, the president shall notify the annual meeting.

SECT. 5. A majority of the members of the board shall constitute a quorum for the transaction of any business; but any less number, at a meeting duly called, may adjourn from time to time until a quorum be obtained.

SECT. 6. Two of the trustees shall visit the asylum each month; and notices of the months by him selected, or to him assigned, shall be sent to each member by the superintendent before the first day of such month.

SECT. 7. No trustee shall receive any compensation for his services as trustee; but expenses necessarily incurred in rendering the same shall be paid by the asylum.

SECT. 8. The trustees shall, at each annual meeting, appoint from their number an auditor, whose duty it shall be to examine the books and audit the accounts of the treasurer and of the financial agent for the ensuing year, and make a written report to the board.

SECT. 9. The treasurer shall give a bond, acceptable to the trustees, in the penal sum of fifteen thousand dollars, for the faithful performance of his duties for and during such time as he shall continue to hold the office of treasurer, which bond shall be deposited with the president of the board.

SECT. 10. The treasurer shall receive, hold, and disburse all moneys coming to the asylum, except the permanent funds and the income thereof. He shall make an exhibit of the state of his books, and of the property in his custody, when called for by the trustees. He shall make up his accounts to the 31st day of March inclusive in each year, which accounts, with his report thereon, shall be laid before the trustees at their annual meeting. His books shall at all times be open to the examination of the trustees.

SECT. 11. The treasurer shall pay all bills approved by the superintendent, and, in addition thereto, such orders as the superintendent may draw on him for the ordinary expenditures of the asylum, when said offices are held by different individuals.

SECT. 12. The treasurer shall receive such compensation for his services as the trustees may from time to time determine.

SECT. 13. The secretary shall attend all meetings of the board

of trustees, and keep a record of their proceedings. He shall also prepare, or cause to be prepared, all documents, statements, and notices which may be ordered by the board, or by the president thereof.

SECT. 14. The secretary shall receive such compensation for his services as the trustees may from time to time determine.

SECT. 15. The board of trustees shall appoint a superintendent, who shall be a physician, and reside at the asylum. He shall have the entire control of the treatment and management of the patients; the power to appoint and discharge all persons employed in their care; and shall exercise a general supervision and direction of every department of the institution.

SECT. 16. The superintendent shall make a written report to the trustees, at their annual meeting, of the condition of the asylum, and embracing such other topics as may have been suggested by the progress of the institution and the experience of the year.

SECT. 17. The superintendent shall receive for his services, in addition to furnished apartments, board, lights, and fuel for himself and family, such a salary as the trustees may from time to time determine.

SECT. 18. The superintendent shall furnish, to the acceptance of the trustees, a bond for the faithful performance of his duties in the penal sum of ten thousand dollars, which bond shall be kept by the president of the asylum.

SECT. 19. The superintendent shall appoint two assistant physicians, who shall reside at the asylum. They shall possess such characters and qualifications as will enable them to discharge the ordinary duties of the superintendent, and shall at all times perform such duties as he may assign them, and to his acceptance.

SECT. 20. The assistant physicians shall receive such compensation for their services as the trustees may from time to time determine, in addition to furnished apartments, lights, fuel, and board.

SECT. 21. All funds amounting to one hundred dollars and upwards, which have heretofore been or which may hereafter be given to the New Hampshire Asylum for the Insane, shall, unless otherwise ordered by the donors, be entered upon the books of the financial agent as permanent funds, with the surnames of the donors attached to each, and be forever kept intact. The income of each

shall be expended from time to time in accordance with the conditions upon which it was given, or, in the absence of conditions, in such manner as the trustees shall deem to be for the highest interest of the asylum and its patients.

SECT. 22. There shall be chosen, by ballot, a financial agent, who shall have charge of the permanent funds of the asylum, shall collect, and, under the advice of the finance committee, from time to time invest, manage, and disburse any moneys arising therefrom. He shall be, *ex officio*, a member of the finance committee, shall give a satisfactory bond for the faithful performance of his trust in the sum of twenty-five thousand dollars, and continue in office until his successor is elected. He shall receive for his services such compensation as the trustees shall from time to time determine.

SECT. 23. The trustees shall annually choose two from their board, who, with the financial agent, shall constitute a finance committee, and have general supervision and control of the permanent funds of the asylum, with power to sell and transfer any stocks, bonds, and other securities belonging to said funds, whenever, in their judgment, it may be expedient so to do.

SECT. 24. Besides attending the annual meeting, the trustees shall severally visit the asylum twice each year, in such months as they may select, or as may be assigned to them; make a thorough examination of the house and of the condition of the patients; and, before leaving, make a record of their respective visits in a book to be kept at the asylum for that purpose.

SECT. 25. These by-laws may be altered or amended at any annual meeting by a vote of two thirds of the trustees present, or at a special meeting called for that purpose.

SERVICE MANUAL.

A strict observance of the following rules is the established condition of all contracts for service with the New Hampshire Asylum for the Insane ; and any applicant for a position not willing to observe them strictly, will do better to seek employment elsewhere.

1. Any employé wishing to leave the premises to go into the city or elsewhere must apply at the office, that such absence may be understood ; and all must be at the asylum at 9.30 o'clock in the evening, unless away later by permission.

2. It is expected that all persons employed will consider that, on the conditions of their respective contracts, they have engaged their time and best services to the asylum ; that it is inconsistent with their duties to hold any political office ; that they are under obligations to do every duty assigned them, promptly and faithfully ; that they will feel personally interested in the good care, safety, and welfare of the patients ; and that they will give their personal influence in support of good order and the established regulations of the institution. To this end it is most desirable that all should cultivate quiet, kind, and dignified manners and correct habits in all things, considering always that this is no less for the interest of the employé than for that of the employer.

3. Those proposing to discontinue their services will give at least thirty days' notice, that time may be given to supply their places.

4. That the house may be quiet, it is expected that all will be at their own rooms after 9.30 o'clock in the evening, at which time the house is closed for the night. After this time the quiet of the house must not be disturbed by passing and conversation. All must bear in mind that the repose of the patients is a thing of prime im-

portance. All having duties must rise at the morning bell and proceed to the performance of the same.

5. No light must be carried about the buildings except in a lantern, and the greatest care must be taken in the use of matches that none be left exposed. A little carelessness in this thing might be followed with the most serious consequences. No smoking will be allowed on the asylum premises, except in the smoking-room provided for that purpose.

6. No one will invite visitors to stop in the house without permission to do so; but on application all reasonable privileges will be granted.

7. No one shall employ a patient to do private work for himself or herself without the consent of the superintendent, assistant superintendent, or other officer authorized to give such permission; and no one is allowed to trade or make bargains with patients.

8. Provision is made to afford each person employed a vacation of two weeks in the year, during which time the duties of the position will be done by a substitute; but the superintendent does not guarantee to retain the place of any one for a longer term of absence. On leaving for a vacation, or permanently, every one will deliver his or her keys at the office.

9. Whenever patients are encouraged to engage in any kind of labor, it is with a view to their own benefit; and hence no one will be taken from the halls for that purpose unless some order to that effect has been given in the case.

10. The person taking patients to labor will be held strictly responsible for their safety, kind care, and safe return to their respective halls.

11. All farmers or others to whom patients are intrusted for labor will remember that they are not to be treated as servants; they will avoid all appearance of commanding, and will exercise the greatest care that no willing one shall be made a drudge or work too long. It will be treated as a grave offence if any employé shall take advantage of the willingness or mental weakness of any patient to impose on such one the harder or more unpleasant parts of the work on which they are employed. The head farmer is required to see that this rule is obeyed in spirit and letter, and report promptly to the superintendent any violation of the same. As occupation is

a thing of the greatest value to most patients, every employé is required to do all in his or her power to interest them in it in some form, and make it attractive.

12. As far as practicable, provision will be made to give each employé opportunity to be absent from duty for church services on Sunday a due proportion of the time ; and any whose ordinary labor is wholly suspended on Sunday are liable to be called on to relieve others, whose duties continue, a portion of the time, and such must hold themselves in readiness to be so called on. It is expected that all employés, whose duties do not interfere, will be present at the regular Sunday service in the chapel.

STEWARD.

The steward will have the general oversight of the buildings, farm, stock, and premises. It will be his duty to attend to ordinary business transactions, and see that asylum property in every department is saved, kept in its proper place, protected from harm or waste, and properly used. He will see that everything about the premises is kept in good order, that the grounds near the house are kept clean, free from waste and rubbish, and will extend the same supervision to the basement and attics, and see that the person to whom it is assigned to care for these spaces discharges his duty faithfully. He will see that all animals are properly taken care of, and that carriages, tools, and implements are kept in repair, and stored in their places when not in use ; and, generally, he will be responsible to the superintendent for the good condition of property and premises, and must properly notify him of anything adverse to the welfare of the asylum which comes to his knowledge. He will attend to procuring ordinary supplies for subsistence, except so far as otherwise provided for by the superintendent, and see that such goods are delivered and stored in their proper places. He will see that the house is closed and the doors locked at the appointed hour at night, and hold himself ready to discharge any special duty required by the superintendent.

CLERK.

It will be the duty of the clerk to keep the books and accounts in a neat and accurate manner, take systematic care of all papers

connected therewith, and perform any special clerical work required by the superintendent.

HOUSEKEEPER.

SECTION 1. The housekeeper will have the general management of the internal domestic affairs. The labor in the kitchen, laundry, and sewing department will be done under her direction; and those employed in these departments will hold themselves subject to her orders in the discharge of their duties. She will attend to the good condition of all apartments connected with the general housekeeping, will see that they are properly furnished and kept in good order. She will see that all the work in her departments is done in accordance with the general instructions of the superintendent.

SECT. 2. She will have the care of all goods and material used in her department, and will see that they are saved and economically used; all bedding and articles manufactured for housekeeping purposes will be under her care, and she must see that they are not wasted or given out needlessly. She will have the care of the making of any clothing furnished to female patients, and will be required to keep an accurate account of the cost of such clothing or other articles furnished to any one. The cost of any articles furnished for patients must be returned by her to the supervisor, to be entered in the accounts of such patients.

SECT. 3. It is the duty of the housekeeper to report to the superintendent any instance of misconduct, failure in the proper discharge of duty, or violation of the established regulations occurring in her department, and not promptly rectified by the delinquent. It will also be her duty to report to the person who keeps the time-book the times of commencing and leaving duty of all employed in her department.

SUPERVISORS.

SECTION 1. The supervisors in their respective departments will have the general oversight of the halls and the patients; and the prudence and tact with which their duties are performed will be an important factor in the condition of the house. It is expected that they will see that the rules of the house relating to the patients are observed in every particular; that all patients are treated with uniform respect and kindness; and it is their imperative duty to report

immediately to the superintendent or assistant superintendent any instance of neglect, incivility, or ill usage of a patient, or any violation of the established rules.

SECT. 2. They will see that all medicines prescribed are faithfully and in a proper manner administered, and that all directions of the medical officers are strictly obeyed.

SECT. 3. They will be expected to pass as much time in the halls as the proper discharge of other duties will allow, will instruct new attendants in their duties, and as much as possible assist in efforts to interest and employ the patients.

SECT. 4. The supervisors must see that the dining-rooms are furnished with the necessary utensils, that the attendants take proper care of the dining-rooms, that the cupboards are sweet and in order, the tables neatly set, and the meals properly served.

SECT. 5. They will have the general charge of the clothing of the patients, and an oversight of the beds and bedding of the halls. The attendants must report to them any deficiency in either which may exist, and it is their duty to see that such wants are supplied.

SECT. 6. On the admission of patients, their clothing will be taken in charge by the supervisors, entered in the book provided for the purpose, and each article plainly marked. All articles afterwards furnished or received will be cared for in the same manner.

The clothing of patients leaving must be compared with the record, neatly packed, and delivered at the office by the appropriate supervisor.

Any knives, razors, or other dangerous article in possession of a patient on admission must be brought to the office for safe-keeping and record.

SECT. 7. They will pay special attention to the sick, report promptly at the office any change of symptoms, see that they have proper attention, and that any special diet prescribed is delicately prepared and served.

SECT. 8. After passing through the halls and learning the condition of the patients early in the morning, the supervisors will very briefly report to the physicians any sickness or other fact demanding attention before these morning visits.

SECT. 9. Before the Sunday chapel service, and other occasions of public gathering, the supervisors will see that the patients are

properly dressed for the occasion, and accompanied to the chapel by their attendants.

SECT. 10. The supervisors will report to the clerk the times of commencing and leaving off work on the part of the attendants employed in their respective departments.

SECT. 11. In general, the supervisors are expected to hold themselves in readiness to carry into practical effect the instructions of the superintendent, and to use all their personal influence in support of the spirit and design of these regulations.

ATTENDANTS.

SECTION 1. In all their intercourse with the patients, the attendants are required to treat them with respect and civility, to be kind and gentle in manner, and avoid roughness of every kind. They must answer, as far as they can, the civil questions of a patient, and attend to every reasonable request. They must be calm and quiet under provocation, never scold, threaten, or recriminate, and make every request in a respectful manner.

SECT. 2. In the care of the insane, sympathy, kindness, and tact should take the place of force and display of authority. But if at any time the use of force becomes a necessity, the *manner* of using it should take away its offensiveness; *and force* should never be resorted to without the presence of sufficient assistance to render a violent struggle unnecessary.

SECT. 3. A cheerful look, a kind manner, a respectful demeanor, and expressions of sympathy will do much to quiet the excited, and give the attendant influence and easy control over patients, and render duty easy and agreeable.

SECT. 4. The opposition which the insane make often arises from delusions that lead them to believe they are to be injured in some way, and for this reason every effort to control them to administer food, medicine, or baths, or to do anything for them, should be made in the most kind and delicate manner, that their confidence may be secured and retained. On the other hand, cross words, angry looks, or violent acts destroy their confidence and diminish their chances of recovery. No one must risk the consequences of such measures.

SECT. 5. A blow or a kick is never to be inflicted on a patient

by any employé under any circumstances. Any violation of this rule will be treated as a grave offence.

SECT. 6. Mechanical restraint must never be put on a patient without the authority of a medical officer.

SECT. 7. The attendant should be an example of good manners, avoiding all rude and ungentlemanly or unladylike habits not suited to the well-ordered household. They should treat each other and all with civility and politeness, cherish a high sense of obligation, and never forget the golden rule, to do by others as, in changed circumstances, one would wish to be done by. By this simple means the attendant is sure to gain not only self-respect, but an easy control and personal influence.

SECT. 8. Attendants should hear with patience, and answer with caution; should never promise what cannot safely be performed, and having made a promise, be faithful in its execution.

SECT. 9. The peculiarities of patients must never be made a subject of sport or ridicule, but, rather, withheld from publicity, with tender regard for their feelings and welfare.

SECT. 10. The attendants must rise at the ringing of the morning bell, and at once commence the labors of the day. On opening the sleeping-rooms of the patients, they shall greet the occupants with expressions of kindness, see that they rise (if able), are properly dressed, washed, and prepared for breakfast at the appointed hour.

SECT. 11. As soon as practicable after the patients have arisen from bed, the attendants must see that the night-vessels are removed from the rooms and the beds are thrown open for airing; and as soon as other duties will allow, they will remove all soiled bedding, and see that the beds are put in good order.

SECT. 12. Immediately after breakfast the halls and patients' rooms must be made clean and put in good order, and so kept at all times. Scrupulous care must be given to the water-closets, which will require frequent rinsing with hot water, and the use of disinfectants. The same care must be taken of the wash-bowls, and a sufficiency of clean towels must be at hand, as well as combs and brushes for the hair.

The attendants will follow the same rule of cleanliness in the care of the halls, windows, spaces, back-stairs, and dining-rooms,

never being satisfied until they are as clean as they can be made. Patients able and willing to assist in these labors are to be encouraged to do so, *but never compelled to work*. The attendants are held responsible for the complete execution of these requirements.

SECT. 13. The attendants will ever be watchful of the state of the atmosphere in the halls, and report to the office any evidence of impurity which is beyond their power to correct otherwise.

SECT. 14. The attendants must see that clean linen is put on each bed once in every week, and oftener if necessary; and if a sufficient supply of this or of towels is not at hand, the fact must be promptly reported to the supervisor.

SECT. 15. The attendants must see that the tables are properly laid, that everything about them is perfectly clean, and that they are made as inviting as practicable. During meals the attendants must always be present and wait on the table in a respectful and delicate manner, such as they would be willing to have adopted toward themselves under like circumstances. *Patients must not be hurried through their meals*, to hasten the clearing of the table. The attendants must use special care that no knife, fork, or other article is carried from the table by any patient.

SECT. 16. It is obviously improper for the attendants, after the hall work is done, to retire to their own rooms and leave the patients alone during hours of duty. Their time and attention are due to the patients, and must be devoted to keeping them quiet and tidy, preventing improper conduct of every sort, or lapsing into listlessness and torpor; to efforts to preserve their self-respect, and to carry into effect the general direction of the physicians. These ends are to be sought by efforts to keep patients occupied, either in work, reading, games, or judicious social intercourse.

SECT. 17. Visiting from hall to hall during hours of duty, without special business, or going away to other parts of the premises out of one's field of service, is wholly improper, and not allowed.

SECT. 18. The attendants are expected to know how every patient in their charge is employed, and to be vigilant, by every means in their power, to better the condition of every one.

SECT. 19. The attendants must not allow a patient to be taken from the halls by any one employed in other departments unless a general or special permission from a medical officer to that effect has

been given; nor will the patients leave the halls before breakfast or on Sunday without the same permission.

SECT. 20. The attendants must always be alive to the welfare of those in their charge, and in the night hold themselves ready to arise and assist the night attendant if the condition of a patient requires it. They will come to the office for medicines or instructions when needed, and follow all directions carefully. After giving medicines, they should wash and return the glasses *at once*.

SECT. 21. If damage is done to buildings or property, by patients, the attendants will report it to their supervisor.

SECT. 22. The attendants are never to give up their keys except at the office, on leaving; nor are they ever to admit strangers into the halls without special permission.

SECT. 23. *The attendants will always take care that the clothing worn by patients is adapted to the season and the occasion. In case of sudden change from heat to cold, they must make at once the needed change in clothing.*

SECT. 24. It is particularly expected of attendants to see that every patient is cleanly in person, that the hair and nails are attended to, that any rent in clothing is properly mended, that the garments worn are kept buttoned or hooked, and that any stains from carelessness in eating are promptly removed. Each attendant should keep at hand a sponge and soap, and a small stock of sewing utensils, as needles, thread, buttons, hooks and eyes, etc., for immediate use when needed.

SECT. 25. When the physicians visit the halls, one of the attendants must be on hand to give any information required, to accompany them to any patient's room or render any other assistance needed.

SECT. 26. Each patient will take a warm bath each week, unless made an exception by direction of the physician. In particular cases of weakness or special delicacy, the sponge bath may be substituted for the tub. In such cases, as well as those who may desire to bathe more frequently, the attendant should apply to the attending physician for specific directions. The attendants must superintend the baths of patients, and not leave the halls with the bathrooms open [unless exceptions are made]; and in no case must an epileptic or suicidal patient bathe without the presence of an attendant.

SECT. 27. In suitable weather all patients who are able will go out for exercise, accompanied by their respective attendants, on such conditions as shall from time to time be prescribed. In these outdoor exercises the attendants must see that no one strays from the party, and so regulate the speed of walking or the character of other exercise as to suit, as well as may be, the average of persons present. They must try to avoid all appearance of restraint, and seek to make these occasions as enjoyable as possible. Preference should be given to walks within the asylum grounds; but when walks are taken into the city, it is not permitted to visit stores, hotels, railroad stations, or other public places, except by permission previously obtained.

In the airing-courts the same rules for the care of patients will be observed as apply to the halls. The attendants must not allow any rubbish to accumulate on the ground of the courts.

SECT. 28. The attendants must shave those patients who do not desire to wear a beard. In shaving, great care must be taken to have the razor in good order, and to shave easily and neatly. No other patient should be present; and the razors must be kept under lock and key in the attendant's room.

SECT. 29. The attendants, in their respective halls, will strictly observe the instructions of the superintendent in regard to the time for the patients' retiring; and in assisting them to bed they must practice the same delicacy and courtesy enjoined elsewhere in these rules. Before closing the doors for the night they must see that the patients are comfortably in bed; *and it is especially enjoined* that they offer gentle and patient assistance to the feeble and aged, and leave all with a kind "good-night."

NIGHT ATTENDANTS.

SECTION 1. The night attendants will visit the office at eight o'clock in the evening, to receive their instructions for the night and go on duty at once. They will continue in charge of their respective sections of the house until after the ringing of the rising-bell, at the times established, after which they will be relieved by the attendants. They must be always awake, vigilant, and faithful, giving their whole attention to the condition of the house and the patients. They must make their respective rounds, not hastily, thus leaving a large part of the time to be spent at the office, but

dividing it between the various apartments as directed. They must pass through the halls in the most quiet manner, being especially careful in opening and closing doors, and make the personal observations required with the most respectful delicacy, disturbing the patient as little as possible. They must be especially watchful of the sick, minister tenderly to their wants, carry out scrupulously all instructions in regard to them, and report to a physician any unfavorable change of condition. They must promptly attend to the call of patients, ascertain their wants, and satisfy them, if practicable. They must do all in their power to soothe and quiet any who may be wakeful or timid, and assure them of their safety.

SECT. 2. They must be especially vigilant in the care of those inclining to suicide or self-injury, and neglect no effort to be assured of the safety of such, in accordance with the specific directions they receive in each case.

SECT. 3. They must be always watchful in regard to fire; and, if it occurs, must at once, and in the most quiet manner, inform the officers and employés, without a general alarm, and proceed to extinguish it. They must frequently inspect the attics of their respective departments, and see that the iron doors are kept shut. The safety, the comfort, and the lives of large numbers are intrusted, in a great measure, to the night attendants; and a degree of vigilance and faithfulness corresponding to the magnitude of the interests at stake is expected of them in the execution of all instructions given them.

SECT. 4. It is the imperative duty of the night attendants to report any irregularity or violation of the rules of the house which may come to their knowledge to the superintendent, and not to make the same a subject of remark elsewhere.

SECT. 5. During public services in the chapel on Sunday, and other occasions, it is made the duty of the night attendants to look to the condition of the halls in the absence of the attendants.

COOK.

Under the direction of the matron, the cook will have the supervision of the work in the kitchen, the care of utensils, and of supplies of provisions within the kitchen premises.

The cook must see that the kitchen and all utensils are kept clean and in perfect order, that good order is preserved in the kitchen,

and that each employé performs all duties assigned in a proper manner.

The cook shall see that all food is prepared as directed, is made palatable and inviting, and sent to the halls hot. Special care must be taken in preparing messes for the sick, that they are nicely cooked, and sent to the patients in acceptable form.

The cook will report to the matron any instance of failure in duty or violation of the rules occurring in the department.

Persons employed elsewhere in the institution will not be allowed to loiter about the kitchen premises or bakery.

If any meat, butter, or other articles of food, of poor quality, are furnished for use, the head cook must promptly report it to the steward or superintendent.

BAKER.

The baker will see that the baking-room, oven, and all utensils belonging to his department are kept scrupulously clean at all times, that the house is kept supplied with the various kinds of bread prescribed, and he must keep his stock of bread sufficiently in advance of the demand that it may not be eaten absolutely new. On the mornings designated, he will make warm rolls or biscuit in season for breakfast.

It is his duty to report at once to the superintendent or steward any defect he may discover in the quality of the flour or other material for food furnished to his department.

PORTER.

The porter will have the whole charge of the food car, and will keep it always clean and in good order; will, at the appointed times, take the prepared meals from the kitchen to the several dumb-waiters, and deliver them to the attendants, who shall be present at the call of the slide-bell, assist the porter in running up the dumb-waiter, if necessary, and remove the meals carefully to the dining-rooms. In this, care must be taken by all that the food and utensils are handled gently, and that the meals reach the tables in good order. In like manner must the dishes and slops be received from the attendants by the porter, and by him be properly disposed of.

The porter will be responsible for keeping the basement and attics swept, and everything in its place. It is also his duty to fill the underbeds for the female attendants, great care being taken

that the sacks be not soiled in the process. He will also remove the discarded beds each morning to the place designated. At the appointed times the porter will attend to the delivery of ice to the hall attendants and others, according to instructions of the superintendent. He will see that any objects thrown from the windows during the night are removed promptly in the morning, and will hold himself ready to perform any item of duty required by the superintendent.

ENGINEER.

The engineer will be responsible for the good care of the boilers, engine, steam and water pumps, and all parts of the machinery, which must be kept in repair and in good running order. He shall promptly attend to the repairs needed in steam or water apparatus, or other repairs or alterations assigned to him. It will be his duty to see that the boilers are properly fired, and the fuel used in the most economical and efficient manner. He will see that the radiators, air-chambers, and flues are properly adjusted for heat and ventilation, and that the amount of steam generated is wisely adapted to the state of the weather. It will be his duty in summer to attend to all needed alterations and repairs in steam-heating apparatus, preparatory to the demands of winter.

He must at all times be so thoroughly familiar with the location and condition of all hydrants, hose, or water-cocks provided for the extinguishing of fire, that he can put them in operation instantly, if needed. He will also be expected to hold himself in readiness to attend to any special duty required by the superintendent.

FARMER.

The head farmer will have the immediate supervision of the farm laborers, the laying out of the work, and the direction of the care and use of the stock and farming utensils; and all farm laborers will look to him for specific directions as to their duties.

It is his duty to see that all farm fences are kept in repair, and that everything on the farm and about the farm buildings is kept in perfect order, that the stock is well cared for, that every farmer performs his duty well, and that all material is properly and economically used. He will report to the clerk the time of service of each person in his department, and to the superintendent any fault or failure in duty on the part of any under his charge.

SUCCESSION OF OFFICERS.

TRUSTEES.

Commissioned.	Name.	Residence.
1840, June 20.	Daniel Abbot,	Nashua.
June 20.	Amos Twitchell,	Keene.
June 20.	Ichabod Bartlett,	Portsmouth.
June 20.	John Conant,	Jaffrey.
June 20.	Joseph Low,	Concord.
June 20.	Charles H. Peaslee,	Concord.
June 20.	Ira St. Clair,	Deerfield.
June 20.	Charles A. Cheever,	Portsmouth.
June 20.	John P. Hale,	Dover.
June 20.	Charles J. Fox,	Nashville.
June 20.	Samuel Swasey,	Haverhill.
June 20.	John S. Wells,	Lancaster.
1841, June 15.	Enos Stevens,	Charlestown.
June 15.	George W. Kittredge,	Newmarket.
June 15.	Joseph Low, reappointed,	Concord.
1843, June 19.	Moses Norris, Jr.,	Pittsfield.
June 19.	Ira St. Clair, reappointed,	Deerfield.
June 19.	Charles J. Fox, reappointed,	Nashville.
1845, June 30.	Abiel Walker, <i>vice</i> Joseph Low,	Concord.
June 30.	A. McFarland, <i>vice</i> G. W. Kittredge,	Meredith.
June 30.	Timothy Hall, <i>vice</i> Enos Stevens,	Keene.
June 30.	Luke Woodbury, <i>vice</i> C. J. Fox,	Antrim.
June 30.	Wm. Plumer, Jr., <i>vice</i> S. E. Coues,	Epping.

1845, Dec.	23.	James Farrington, <i>vice</i> A. McFarland,	Rochester.
1846, July	10.	Nathaniel S. Berry,	Hebron.
	July 10.	George B. Upham,	Claremont.
	July 10.	William Plumer,	Londonderry.
1847, Aug.	9.	Jos. B. Walker, <i>vice</i> A. Walker,	Concord.
	Aug. 9.	Israel Hunt, Jr.,	Nashua.
	Aug. 9.	Warren Lovell,	Meredith.
	Aug. 9.	Thomas Shannon,	Moultonborough.
1848, June	26.	Wm. Plumer, reappointed,	Epping.
	June 26.	Franklin Pierce,	Concord.
	June 26.	R. Metcalf, <i>vice</i> G. B. Upham,	Newport.
	June 26.	Charles H. Peaslee, reappointed,	Concord.
1849, July	3.	Jos. B. Walker, “	Concord.
	July 3.	Joseph H. Smith,	Dover.
	July 3.	Amos A. Parker,	Fitzwilliam.
1850, July	5.	Ralph Metcalf, reappointed,	Newport.
	July 5.	Isaac Ross, <i>vice</i> N. S. Berry,	Hanover.
	July 5.	David Pillsbury, <i>vice</i> William Plumer,	Chester.
1851, July	4.	Charles Burroughs, <i>vice</i> T. Shannon,	Portsmouth.
	July 4.	Israel Hunt, reappointed,	Nashua.
	July 4.	Warren Lovell, “	Laconia.
1852, June	19.	Franklin Pierce, “	Concord.
	June 19.	Wm. Plumer, “	Epping.
	June 19.	Chas. H. Peaslee, “	Concord.
1853, July	1.	Jos. B. Walker, “	Concord.
	July 1.	Jos. H. Smith, “	Dover.
	July 1.	Amos A. Parker, “	Fitzwilliam.
1854, July	15.	Ralph Metcalf, “	Newport.
	July 15.	Samuel Herbert,	Rumney.
	July 15.	Enoch D. Yeaton,	Wakefield.
	Sept. 29.	J. A. Richardson, <i>vice</i> William Plumer,	Durham.
1855, July	10.	Rufus Clement,	Concord.
	July 10.	Alvah Smith, <i>vice</i> Ralph Metcalf,	Lempster.
	July 10.	Chas. Burroughs, reappointed,	Portsmouth.

1856,	Feb. 23.	Timothy Haynes,	<i>vice</i> R. Clement,	Concord.
	July 11.	John Preston,		New Ipswich.
	July 11.	Chas. H. Peaslee, reappointed,		Concord.
1857,	June 30.	George B. Twitchell,		Keene.
	June 30.	Joseph B. Walker, reappointed,		Concord.
	June 30.	John H. White,		Lancaster.
1858,	June 26.	Jeremiah F. Hall,		Wolfeborough.
	June 26.	Ralph Metcalf, reappointed,		Newport.
	June 26.	Samuel Herbert,	"	Rumney.
	Sept. 28.	Edward Wyman, <i>vice</i> R. Metcalf,		Newport.
	June 27.	Charles Burroughs, reappointed,		Portsmouth.
1859,	June 28.	Timothy Haynes,	"	Concord.
	June 27.	Woodbury Melcher,		Gilford.
1860,	June 27.	J. A. Richardson, reappointed,		Durham.
	June 27.	Chas. H. Peaslee,	"	Concord.
	June 27.	John Preston,	"	New Ipswich.
1861,	July 2.	Geo. B. Twitchell,	"	Keene.
	July 2.	Joseph B. Walker,	"	Concord.
	July 2.	John H. White,	"	Lancaster.
1862,	July 2.	John Conant,	"	Jaffrey.
	July 2.	Isaac Spalding,		Nashua.
	July 2.	Moses Clark,		Landaff.
1863,	June 29.	Charles W. Flanders,		Concord.
	June 29.	Charles Burroughs, reappointed,		Portsmouth.
	June 29.	Woodbury Melcher,	"	Laconia.
1864,	July 7.	Charles H. Peaslee,	"	Concord.
	July 7.	John Preston,	"	New Ipswich.
	July 7.	Wm. G. Perry,		Exeter.
1865,	July 16.	Geo. B. Twitchell, reappointed,		Keene.
	July 16.	Joseph B. Walker,	"	Concord.
	July 16.	Denison R. Burnham,		Plymouth.
1866,	June 22.	Charles A. Tufts,		Dover.
	June 22.	John Conant, reappointed,		Jaffrey.
	June 22.	Isaac Spalding,	"	Nashua.
	Oct. 23.	Isaac Adams, <i>vice</i> C. H. Peaslee,		Sandwich.
1867,	June 19.	Charles Burroughs, reappointed,		Portsmouth.
	June 19.	Woodbury Melcher,	"	Laconia.
	June 19.	Ebenezer S. Towle,		Concord.

1868,	April	13.	I. Goodwin	<i>vice</i> C. Burroughs,	Portsmouth.
	July	1.	Isaac Adams,	reappointed,	Sandwich.
	July	1.	Waterman Smith,		Manchester.
	July	1.	Wm. G. Perry,	reappointed,	Exeter.
	July	1.	Ebenezer S. Towle,	"	Concord.
1869,	July	1.	Joseph B. Walker,	"	Concord.
	July	1.	Geo. B. Twitchell,	"	Keene.
	July	1.	Denison R. Burnham,	reappointed,	Plymouth.
1870,	Jan.	3.	John W. Sanborn,	<i>vice</i> Isaac Adams,	Wakefield.
	July	8.	Isaac Spalding,	reappointed,	Nashua.
	July	8.	Charles A. Tufts,	"	Dover.
	July	8.	Dexter Richards,		Newport,
	Nov.	17.	Ellery A. Hibbard,	<i>vice</i> W. Melcher,	Laconia.
1871,	Aug.	9.	Ellery A. Hibbard,	reappointed,	Laconia.
	Aug.	9.	Geo. W. Haven,		Portsmouth.
	Aug.	9.	Henry Colony,		Keene.
1872,	July	16.	Waterman Smith,	reappointed,	Manchester.
	July	16.	Wm. G. Perry,	"	Exeter.
	July	16.	John W. Sanborn,	"	Wakefield.
1873,	Oct.	23.	Joseph B. Walker,	"	Concord.
	Oct.	23.	Geo. B. Twitchell,	"	Keene.
	Oct.	23.	Josiah Minot,		Concord.
1874,	July	8.	Isaac Spalding,	reappointed,	Nashua.
	July	8.	Charles A. Tufts,	"	Dover.
	July	8.	Dexter Richards,	"	Newport.
1875,	July	26.	Ellery A. Hibbard,	"	Laconia.
	July	26.	Charles H. Bell,		Exeter.
	July	26.	Albert Smith,		Peterborough.
1876,	June	22.	David Gillis,		Nashua.
	July	20.	William G. Perry,	reappointed,	Exeter.
	July	20.	Waterman Smith,	"	Manchester.
	July	20.	Joseph Burrows,		Plymouth.
	Aug.	10.	John V. Barron,	<i>vice</i> J. Minot,	Concord.
1877,	Oct.	17.	Joseph B. Walker,	reappointed,	Concord.
	Oct.	17.	Geo. B. Twitchell,	"	Keene.
	Oct.	17.	John V. Barron,	"	Concord.

1878,	May	2.	John H. George, <i>vice</i> J. V. Barron,	Concord.
	May	2.	Carlton P. Frost, <i>vice</i> A. Smith,	Hanover.
	July	8.	Dexter Richards, reappointed,	Newport.
	July	8.	Charles A. Tufts, "	Dover.
	July	8.	David Gillis, "	Nashua.
1879,	July	30.	Ellery A. Hibbard, "	Laconia.
	July	30.	Jeremiah F. Hall,	Portsmouth.
	Aug.	14.	Carlton P. Frost, reappointed,	Hanover.
1880,	July	20.	William G. Perry, "	Exeter.
	July	20.	Waterman Smith, "	Manchester.
	July	20.	Joseph Burrows, "	Plymouth.
1881,	Oct.	12.	Joseph B. Walker, "	Concord.
	Oct.	12.	Geo. B. Twitchell, "	Keene.
	Oct.	12.	John H. George, "	Concord.
1882,	June	21.	Emery J. Randall,	Somersworth.
	June	21.	Frederick E. Potter,	Portsmouth.
	Sept.	22.	Dexter Richards, reappointed,	Newport.
1883,	April	26.	William H. H. Mason, <i>vice</i> J. Burrows,	Moultonborough.
	May	17.	Edward Spalding, <i>vice</i> F. E. Potter,	Nashua.
	Aug.	28.	Ellery A. Hibbard, reappointed,	Laconia.
	Aug.	28.	Carlton P. Frost, "	Hanover.
	Aug.	28.	Jeremiah F. Hall, "	Portsmouth.
1884,	July	25.	Wm. G. Perry, "	Exeter.
	July	25.	Waterman Smith, "	Manchester.
	July	25.	Wm. H. H. Mason, "	Moultonborough.
1885,	Oct.	14.	Joseph B. Walker, "	Concord.
	Oct.	14.	Geo. B. Twitchell, "	Keene.
	Oct.	14.	John H. George, "	Concord.
1886,	Sept.	9.	Dexter Richards, "	Newport.
	July	8.	Emery J. Randall, "	Somersworth.
	July	8.	Edward Spalding, "	Nashua.
1887,	Sept.	7.	Ellery A. Hibbard, "	Laconia.
	Sept.	7.	Carlton P. Frost, "	Hanover.
	Sept.	7.	Jeremiah F. Hall, "	Portsmouth.

1888, Mar.	6.	John E. Barry, <i>vice</i> John H.	
		George, deceased,	Concord.
Mar.	6.	Franklin D. Ayer, <i>vice</i> J. F.	
		Hall, deceased,	Concord.
July	24.	William G. Perry, reappointed,	Exeter.
July	24.	Waterman Smith,	“ Manchester.
July	24.	Wm. H. H. Mason,	“ Moultonborough.

PRESIDENTS.

John H. Steele	.	.	.	.	.	.	1839-1840
John Conant	.	.	.	.	.	.	1840-1846
George B. Upham	.	.	.	.	.	.	1847-1848
William Plumer	.	.	.	.	.	.	1848-1855
Charles Burroughs	.	.	.	.	.	.	1855-1868
Isaac Spalding	.	.	.	.	.	.	1868-1875
George B. Twitchell	.	.	.	.	.	.	1875-

SECRETARIES.

Dixi Crosby	.	.	.	.	.	.	1839-1841
Charles H. Peaslee	.	.	.	.	.	.	1841-1848
Joseph B. Walker	.	.	.	.	.	.	1848-

TREASURERS.

James Thorn	.	.	.	.	.	.	1839-1840
Joseph Low	.	.	.	.	.	.	1840-1846
John Atwood	.	.	.	.	.	.	1846-1847
Andrew McFarland	.	.	.	.	.	.	1847-1852
John E. Tyler	.	.	.	.	.	.	1852-1857
Jesse P. Bancroft	.	.	.	.	.	.	1857-

SUPERINTENDENTS.

George Chandler	.	.	.	.	.	.	1842-1845
Andrew McFarland	.	.	.	.	.	.	1845-1852
John E. Tyler	.	.	.	.	.	.	1852-1857
Jesse P. Bancroft	.	.	.	.	.	.	1857-1882
Charles P. Bancroft	.	.	.	.	.	.	1882-

